Bret and Heather 61st DarkHorse Podcast Livestream\_ If Covid...

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**SPEAKERS**

Bret, Heather

**Bret** 00:08

Hey folks, welcome to the Dark Horse pod cast live stream number 61. Happy New Year to you all. For you, Heather and for I assume everyone in our audience. It is January 2 2021. I am still stuck in late December. I have some work that I didn't finish and I will be catching up to you all in 2021 in maybe a week and a half, two weeks tops.

**Heather** 00:34

Hopefully you're not the guy who had the silica gel who caused 2020. But if you're the guy who gives us a 40 day, December 2020. I'm going to come for you. No,

**Bret** 00:43

I think it's just it's just me. I'm just young, you know, and it's interesting. 2020 I can tell you is now quite deserted. I seem to be the only one here. I'm glad to hear it. Yes. Things still go wrong, though. Sure. The toaster exploded this morning, flew out through the window and put a hole in our new porch.

**Heather** 01:03

What's going on in the kitchen? Yeah, that explains a lot.

**Bret** 01:06

I thought it explained something.

**Heather** 01:10

Alright, so today, we are going to do a few announcements. First, we're just going to start with and we're talking about frog poisons, of course, the diets of some Amazonian peoples move from there to a natural segue into vaccines, some drug treatments that are not vaccinations for COVID. And then finish it up by talking a little bit about the mayor of Portland, Ted Wheeler, who is still the mayor after this last round of elections.

**Bret** 01:39

Will we be making recommendations for dietary upgrades for Amazonian people?

**Heather** 01:44

No, we will not. We will not know. Well, that's a shame. You'll know I will teaser. Some of them seem to specialize on macaws, they eat very large parrots. Oh, yeah,

**Bret** 01:53

I have something on that. But you don't know that I have. But when we get I don't. All right. So announcements, yes. Let us start with we have added some items to the I'm not gonna say merch, I just won't Yes, there you have it on your screen. Now the first against the wall club. We have some shirts and hoodies and stickers and colleges and things like that. So anyway, I did want to say a word about what first against the wall club means what it is supposed to evoke. It was a very popular thing that was discussed on the podcast, and many people requested that we get some stuff out there in the world. What first against the wall club is an illusion to is the fact that the the enemies of reason are not likely to be nice if they win. And that in some sense, we are watching an epidemic of cowardice, which is allowing this woek revolution to take over the world. And if we're going to beat it, we have to get over the cowardice. And so there's a sense that one of the things one really has to do is you have to find your courage and you have to budget for what that means. And it means confronting the the understanding of the fact that you will not be treated well if they win, but what it really means is not that any of us want to end up against the wall, I certainly don't expect to be lined up against the wall, myself. And the reason I don't expect to is because I know that failure is not an option that we can and must win. And so we will do it. So anyway, if you are of like mind, then consider I don't know, the first against the wall club and grabbing a mug and also I it occurred to me that we are frequently asked about what advice we can give people who are facing a world confrontation of their own. And it occurs to me that one thing you could do to encourage people to find their their strength and their willingness to say what's true in spite of the risks and hazards would be to I don't know, give them a sticker. Or if you don't want to buy a sticker you could write out your own card inviting them to the first against the wall club. final thing I'll say is, the recognition of the hazard of standing up against these sorts of foes is frightening but you get used to it and many, many humans have confronted very frightening things because history demanded that of them and we are no different in this regard. We are lucky that we are not facing a literal battlefield with bullets. But nonetheless, it is our obligation and future generations require of us that we that we become courageous and fend this off because everything seems to depend on

**Heather** 04:56

it. So people are interested in that. Where do they find it?

**Bret** 04:59

Oh, would find that at the Here we go, Dark Horse. It is store dot Dark Horse podcast.org. That will take you there. Alright, so hopefully you enjoy those things. second announcement is, it's sort of a correction. It's an odd one, some of you will have noticed that the podcast that we did live last week was briefly unavailable and then went back to availability. The reason for that is that we discovered that a story that had been forwarded to us that we had talked about the story about a trans woman in the Evergreen locker rooms, we discovered that that story, though it was forwarded to us in the present was not modern. And we thought it was modern at the time, we pull it down to make sure that we hadn't said anything that wasn't right. We went back and looked at it carefully. We didn't say anything. That was incorrect. And so we elected to put it back up as is but do know that we should have known that that story took place. In fact, in 2012, when we were at evergreen, somehow that story did not make it to us, which I still find surprising. But in any case, apologies for the error but like we said the story as nothing we said in there is untrue. So

**Heather** 06:19

and the original episode is unadulterated backup.

**Bret** 06:22

Yep. All right. So that that takes care of announcements.

**Heather** 06:27

It does. So let us start with a tale of fraud poisons and the awful terrible very bad New York Times. And, and from there, in part because I ended up finding the story just fascinating about the different diets of some of the Brazilian and Peruvian Amazonian tribes, but also as just an indicator of how, how one can end up in interesting scientific territory by following some sort of chain of, of research and and links to end up someplace really unrelated to where you started. So first, though, we found yesterday, this story in the New York Times. Can you poison your way to good health? West Coast wellness elites think combo and Amazonian frog poisoned drug is helping them purge toxins in quotes from their lives. Not the toxins here is in quotations. But if you go down to the third paragraph, and I've lost control of my screen again. You can read Cumbo long used by some indigenous tribes in South America as a sort of rain forest vaccine is not a recreational drug you don't trip in the tangerine trees and marmalade skies sense Did they say vaccine?

**Bret** 07:49

I can't imagine why they would have said vaccine right

**Heather** 07:51

it's an incredibly you're responsible especially in the modern moment use of this term and so I because I do not have access to my computer I cannot do I have it back there we go. Later in the same article if you can just give me a screenshot real quick here Brett Zack. Literally one of the subheadings of the sections is a rain forest vaccine question mark. And you know I haven't I have yet to explain what this is what this is this. It's this frog. It's a hybrid, which is a tree frog. And actually apropos our conversation I finally had a conversation last week tree frog can be both an ecological descriptor. A frog that hangs out in trees and is adapted for trees. It is also a phylogenetic description of all of those frogs that are in the group known as highlighting the family of quote unquote tree frog. So this there's this frog file Medusa by color, which is also known as the like the Amazonian monkey frog, the Amazonian leaf, right? There are a lot of common names. So the reason that you use the Latin term is that there's only one scientific name, binomial file Medusa by color, when captured and hassled, as is the case of many other rainforest frogs, including the ones that I studied both in the new world the dark poisoned frogs and in Madagascar The mentelle is when hassled they will produce a white exit date on their skin. And that is that is toxic that is poisonous. This toxin that phyla Medusa by color produces is totally unrelated to the lipophilic alkaloids, I think that are present in the frogs that I studied.

**Bret** 09:28

Yeah. Which it would be expected based on the fact that in spite of the fact that both men telling frogs Oh, they're not mantling frogs anymore, are they? No man telling frog jelly still works and is just the molecule those

**Heather** 09:41

are the Mala Mala Ghazi

**Bret** 09:43

poison frogs and the poison dart frogs, which were dender babies are they have they been moved?

**Heather** 09:50

They're still dendrobates heads. They split the Geno's and ofay genders. Okay,

**Bret** 09:55

good enough. I'm still dendrobatidis that's fair. Okay, so the point is just by the fact that ecologically speaking, these are both heavily tree associated clades. These aren't neither of them highlights they're not tree frogs in the phylogenetic sense, they're tree frogs only in the ecological sense. And so you would expect that a toxin that was unique to these groups could only be found in Highlands if it was separately and convergently evolved. And it is therefore no surprise to find that some other toxins, many frogs, many amphibians, in fact, are toxic. And it is not surprising to find that some other toxin has evolved, presumably to dissuade predators.

**Heather** 10:35

Yeah, well, I mean this Well, there's lots of little little fingers to go down here, but just because you mentioned it with regard to convergence of diet. In fact, these two really distantly clades of frogs that are not the ones that produce combo but the dark poison frogs from the New World. And the Mandela's from Madagascar, to have the same class of alkaloids that they produce in their skin which therefore produce the same kinds of really undesirable effects in those who eat them. And that is in fact convergently evolved as a result of them sharing aspects of their diet it is the ants and mites in the frogs diet that produce that provide the building blocks for the alkaloids that the frogs then convergently produce and I actually did not there is by the same by the same researchers who discovered the nature of the chemistry in the frogs that I worked on. Myers and daily there is some work on these guys on file Medusa I did not track it down. I don't know to what we attribute their poisons, but it's different. So combo, which is the name of this. This boy, I just don't have my computer. There we go. Yeah, that might be that might be useful.

**Heather** 11:55

Okay. Well, we'll just see if it's working at the moment. No, it's not. Yeah, so I think you just need to give him my computer and. Okay, we are having I don't know why. Why don't you go trackpad. Okay. Okay. So, combo is, has been described as this as a vaccine by the New York Times, but in no way is it it is, in fact, of course, a toxin that produces strong purgative effects and, and you know, diarrhea as as well about, you know, vomiting and diarrhea very quickly upon upon taking it and it's sort of, although I have not seen it called this, it sort of seems like it's the first hour to a via wasco with none of the euphoric hallucinogenic effects that all the bad part of it all the bad part and none of the euphoria, some of the people in the Amazonian tribes who actually do do use it, do report, oh, I'm a better hunter afterwards. I have a reduction in pain. You know, it's not it's not clear this work is mostly not been done. But what it's definitely not is vaccinating you against anything. And so the reason I first wanted the story was not because, oh, Amazonian rainforest frogs, I know something about those I'm interested and in people, but in what the hell is the New York Times doing calling this a vaccine. And it turns out, there's this original, the first description in western literature of people using this toxin in this way is from a 1925 report, originally written in French, in which the author uses the French verb vaccinate, which can mean vaccinate or inoculate. But that doesn't mean that the local people were saying that they're being vaccinated, nor that the author of that paper actually thought so. And it is, frankly, your gross journalistic malpractice, once again, to be talking about giving yourself a poison that causes purgative effects. As if there is an any kind of equivalent with regard to it being it being a vaccine, sorry, I'm super distracted. There's all sorts of tech stuff going on here.

**Bret** 14:21

So let us just point out that the term vaccine, I believe, comes from the Latin Baka or some version of cow Yep. And it is the result. The reason that it accompanies what we moderns term vaccines is because Jenner, the way he discovered the process of vaccination This is not the only time humans have discovered it. But it is where the West derives its history of vaccination was from the observation that milkmaids did not get smallpox by virtue of having been infected by a cow pox. Which is a trivially harmful infection that cow that milkmaids got from milking cows. And that therefore created this cross immunity. So the point is this process is in no way, it's not an arbitrary term at all, it applies to the triggering of the immune system to be alert for something that it then sees later, which is pathogenic has nothing to do with this process, which

**Heather** 15:28

is, is there a blanket term, maybe medicine is the blanket term they're looking for, although frankly, if it's straight up a toxin, it's it's even questionable if you call it a medicine, but medicine is at least a plausible term that you could defend. It's a pharmaceutical, it's a pharmaceutical vaccine, it is not in any way a vaccine and the New York Times uses this word twice. Why? Because I mean, I think because as as we'll get back to later in this episode, the the, the very concept of vaccine has now become yet another completely polarized and completely politicized topic. And so actually, I forgot to ask him if I could use his name, so I'm not going to use the name of the former student of ours, you have another former student of ours, who we were in touch with this week, who said, it's like magga hats and it's like, masks, vaccines, whether or not you're pro or con has becoming the new star bellied sneetches and stages without that, you know, that reference to Dr. Seuss being one that I was using a lot earlier in our live streams. And the fact is, the idea that you are simply pro vaccine or simply against vaccine is an insane position. It's an anti scientific position to simply be opposed to all vaccines, and it's an anti scientific position to simply be in favor of all vaccines, no matter what both of those are, uninvestigated, knee jerk anti scientific positions, and the idea that a large proportion of the country seems to be really happy in one of these two camps. Why? Well, in part because the journalists, who are the people who are supposed to be interpreting the high level work for the rest of us, and giving us information which we can use to decide for ourselves, are incompetent, they are doing a terrible, terrible job at the point that you call combo, a toxin from a rain forest frog that will cause you to puke for two hours a vaccine. Of course, many people don't trust you anymore.

**Bret** 17:23

Yeah, it's this, this will come up in a couple different ways. This is a hell of a moment to decide vaccines are all one thing or the other is exactly the moment that we can't afford that. But what they're effectively doing here is borrowing from the fact that for their audience, vaccine is an unalloyed good, which is preposterous, and they are using that Ill legitimately to cast this other thing in a positive light. Now this other thing may well be positive, but if they use the technically correct term, if they said pharmaceutical, right, then the pharmaceutical has a very ambiguous Valence. Right? We all have suspicions about pharmaceuticals, don't we? But we're supposed to think vaccines are an entirely different phenomenon with you know, no risks or anything associated with them. And so in effect they are they are abusing the illogical circuitry that we have built around these for, frankly, nefarious purposes. Yep. To do what Eric has pointed out, Russell Kant, conjugation Russell being Bertrand Russell, basically the idea that one uses slightly different wording to say things that have the same literal meaning but carry a very different emotional connotation, right. They're doing that they're abusing the term vaccine in order to borrow it's unjustified very positive connotation for this story about a rain forest toxin

**Heather** 18:55

right? No, that's I think that's that's exactly right. We do this is very much related to smack in the middle of this whole concept of Russell conjugation. That we can deceive with language and have plausible deniability afterwards. Although in this case, I would say there is no plausible deniability. This is simply not a vaccine in any way. It's not related to vaccine directly and directly update their own credibility, their own credibility. Yeah, exactly. Now, what was just one more thing about the frogs, I was reminded, reading this, you know, in the New York Times article says, oh, you're 10 years ago, these people would have been doing iosa. And you know, yurts in the backyards of people in Southern California. And now they're doing combo and you know, it definitely it invokes an image, like I got it right there. And it also invoked for me however, it reminded me of my very first study abroad program, not actually what evergreen I ran a study abroad program is, you know, through an independent field school before I started at evergreen, and after I got my PhD, and I had students, none of whom I'd met before meeting them in Panama. We're in Bocas Del Toro archipelago. And I had students from the US and from Europe and after one of the first days of field work where they were supposed to be collecting some data on their own a couple of couple the couple of guys came back and told me they'd like some frogs. Like guys, you have no idea what you're doing like you You heard somewhere that some frogs will get you high. And this is really not a safe practice. So really not a safe practice. But young physicians are actually really well equipped to hurt you. And they don't have fangs like they don't have teeth. Well no, so many of them the ones the ones they were looking don't have teeth. Some of them do but yeah, they don't come with spikes and horns and claws and such. They they come with the poisons in their skin and not all of them are but for God's sake, you know, get it get it get it right do your research. Frogger

**Bret** 20:48

let me do traffic's to be so it is so first of all, just to wrap things up nicely. Yeah, the idea that harassing frogs causes them to exude this substance makes perfect sense behaviorally, because in general, it doesn't take much contact with a toxin for a predator to realize I don't want to eat that thing which means that in many instances the animal will not be killed at the point that the predator realizes it's made a mistake, right? So you know toxins tend to be very very bitter and in fact if I can confess you know, the quick and dirty way of figuring out whether some fruit you found in the rain forest is okay to eat used to take it and dab it on your tongue and in general the stuff that you shouldn't eat is bitter as all hell and the stuff you know spontaneous what I love finding on the forest floor, which is perfectly edible and delicious.

**Heather** 21:45

Yes, ma'am. And that's the scientific name of this beautiful kids canopy tree right? Oh, yeah. with with with fruits that must be dispersed, at least in part by monkeys, because we, we like it too. Yeah.

**Bret** 21:58

monkeys and bats, I believe are the primary dispersers monkeys sometimes being lousy dispersers because they will sit in the tree and eat all day and drop the seeds right into the tree which the tree could do itself without us making fruit bats.

**Heather** 22:09

We don't need to send it through a monkey to do that. Thanks much,

**Bret** 22:11

right. So bats are great dispersers why because two reasons. One, they fly so they tend to if they swallow the seeds, they'll crop them out somewhere else. But they also have a very fascinating aversion to hanging out in fruit trees. Even the ones that eat only fruit don't hang out in the fruit trees and the interpretation of this is that those fruit trees attract predators looking for fruit dispersers and so the fruit tree is simultaneously a source of food and a very dangerous place to be which it's possible that the fruit trees actually have a branch structure that increases the likelihood of predators to be there in order to make the the fruit frugivores nervous so they'll leave and go do a good job of dispersing anyway yes, it's an interesting interesting story. But the point is, your students who licked these frogs probably would have the experience if they found a particularly toxic one we probably have the experience of making their mouths very numb and tasting something very bitter and realizing they've made a mistake but there is the occasional num

**Heather** 23:14

is only one like so num what would be the effect from the dark poison frogs as I like I have stories about that. Maybe I'll share one of them here today. But some I don't think combo actually produces for instance, numbness it's not going after sensory neuron synapses. But

**Bret** 23:30

I would just point out that in the dendrobatidis is really your story but the in the dendrobatidis there are the occasional frog that is so toxic that mere contact with the animal is enough to knock a person flat on their so by the baby's tribulus

**Heather** 23:49

right, had we been in a place where that was true, I would have obviously provided them that information in advance and told them to stay the hell away and in fact, across it's since been developed, which is a terrible tragedy, or at least it was in the process of being developed and it's possible it got stopped but there was this is related but not quite the same. The highest density known of eyelash fibers, which is just this beautiful snake named because it has these scales above its eyes that look like it's look like they're wearing, like, you know, fancy fake eyelashes, and they're trees, tree snakes, and they come in a plethora of colors that you know, usually in the rest of their distribution, the rest of their range, they're yellow, but on the syrup dependence lab, which is just a short boat ride away from this field station we were at, there's sometimes pink, there's some is green, or sometimes pale or some splotches. And I had actually one of the students who had looked frogs earlier ended up doing some research on the snakes. But I was over with him for the first several times that he was there and I made sure that he was at you know, not acting like a Yahoo because you just you cannot operate the same way in a tropical forest. Do you want a temperate forest? or anywhere in a place that hasn't been made safe for you? On because there is there is no one who could possibly make it safe.

**Bret** 25:11

Yep. Yeah, and eyelash Vipers being one of these things even those of us who are used to dealing with poisonous snakes, right? The eyelash Viper is where you put your hand which is not the usual for such an animal.

**Heather** 25:23

Yeah, and they're little too and they'll they'll they'll they'll bite yeah

**Bret** 25:26

little and and conspicuous and so as you know, I have a hypothesis about what the value of the eyelashes I find this Okay, one of my favorites now I'll use it. Why not? So the so fortunately, we don't have a picture of this animal or this would be much more Yeah,

**Heather** 25:43

well, like, even if I could I? I don't know I can't okay.

**Bret** 25:49

So the eyelash Viper has these little like, it's scaly. It's basically the same material as the face of the animal and it sticks off above the eye and these are little Vipers that hang out on various plant parts and wait for prey they're sitting wait predators, and being camouflage is key to their, their niche. And so as Heather mentioned, they're tremendously large number of colors even within a brood as I understand it, you can get many different colors, which means

**Heather** 26:23

so I wish we had one of our pictures like you and I both have taken some beautiful pictures. But here's here's one, this isn't a very good picture. Here's why. And again, showing face Yeah, it's tiny, though. Yeah, it's not these aren't great pictures. And I, I didn't prepare for this. So I don't have I don't have any of ours. Anyway, keep over there. That's not bad.

**Bret** 26:45

That's not bad. Can you show it? Can you fullscreen? Really? There we go. So now you can see the little eyelashes and stick off above the animal side. So the hypothesis and again, this is a hypothesis, as far as I know, completely untested. In fact, I don't think anybody has taken it seriously. No, I didn't. I know as you look at you, you're

**Heather** 27:08

I just remember you doing this in class. And it was the first time I heard it when you're teaching together. And I think I just started laughing.

**Bret** 27:14

But you have no idea. This warms my heart I know to be the only person who believes in something. And then you know if this turns out to be right, which I'd be thrilled likely Yeah, I'll be thrilled. But anyway, that's fine. It's not ridiculous. It is its, its nature is ridiculous. So the hypothesis is that this animal in order to do what it does, needs to find a place where it is camouflaged in order to sit. And because you have many different color forms of these snakes within a brood, you can't just wire in, you know your green, your light green snake look for light green places to hide, because the animal doesn't really know what color works, right? Because it could be any color. And so if the genome had that programmed in, you'd somehow have to coordinate the color of the skin with the preference in the eye. And that's not an easy job to do. So what about having a little eyelash that sticks up that allows the animal to look around and match its color to the substrate on which it's going to sit? So

**Heather** 28:17

like, their snakes? Why don't they look at their own tail, like it's, it's cool, but like they're snakes, they have a lot of body they can look at and they're and they're pretty much the same color.

**Bret** 28:30

Okay, okay, okay, but if the animal is looking around, by definition, it will have its eyelashes right where it's looking right? Whereas having to sit somewhere and pull its tail up and match it up to some flower. While that would also be a cool adaptation. I don't think it's nearly as cool as having just a little thing so that this makes predictions. One prediction is that the eyelashes are within the view of the animal enough to work this way. You're gonna

**Heather** 28:55

find this out through interviews.

**Bret** 28:59

Yes, that's how I'm going to find it out. I'm going to ask the animals if they can see their eyelashes. But also, the prediction would be that the eyelashes are never of a different hue than the animal rights trip. So anyway, things like that. So this is how we entertain ourselves. Is it is

**Heather** 29:19

this in Canada? True? So there you go.

**Bret** 29:24

Oh, the last thing Yeah. As long as we're on the topic, amphibians toxic, are newts. Our local newts here are maybe the most toxic pound for pound animal on planet Earth, which was discovered through an accident where some hunters I believe, had accidentally scooped a newt into a coffee pot and then boiled the water to make coffee and were found dead. And this alerted people. These must be very toxic animals they searched and something like there's enough toxin in an interview. vidual knew to kill 50 average people, something like that.

**Heather** 30:03

And I believe the story is not specious that the people in North America who then did work on turca granulosus, and, and isolated the molecule, which they called tareekh, a toxin based on the genus name of the new Latin name of the new tariqa. Went to present their work at some big toxicology conference or some such. Some few decades ago, this was this isn't 100 years ago this is fairly recently and in the audience, I think I've been in the details right and I think this is a true story in the audience for the Japanese researchers who had worked on the toxin that the puffer fish, the genus for which is to treat us I think I may have that quite a little bit wrong, but they actually were presenting at the same conference to try to toxin which is the toxin of the puffer fish and I don't remember who was up first but other the target toxin guys with the newts are the Detroit toxin guys with the pufferfish toxin, we're up there presenting, and the other people were in the audience. And they looked at the molecular description, the chemical description of the of the toxin what, oh, my God, it's the same thing. So it turns out puffer fish in the western Pacific and newts on the west coast of North America separated by a large Pacific Ocean across which the newts cannot cross and other fish do not cross have convergently evolved exactly the same toxin,

**Bret** 31:26

right, which makes a weird kind of sense, because all of these toxins are basically interference molecules with the physiology of critters. And to the extent that critters are variations on a theme. There's a limited number of molecules you could build, and there will be selection for that which most effectively disrupts the creatures in question. And so it's not surprising that selection again and again finds, well, you would expect it to find analogues that could disrupt the same system, what is a little surprising is that it finds exactly the same structure that interfaces with

**Heather** 32:00

right. And in that case, not because as with, as I already mentioned, are poison frogs in the new world that underpads and the mentale is the poison frogs of Madagascar have converged upon exactly the same lipophilic alkaloids. But we can trace that to an environmental similarity, which is that the building blocks for those alkaloids are in the alkaloids or in the mites in the ants that they eat. Even though the species of ants and mites, like the species of frogs themselves are complete are so distantly related in Madagascar versus the New World, despite having a good one and distribution that is that is shared. But we're talking about 10s to well over 100 million years since gunpowder has been separated. Anyway, that, you know, biogeography for another time. But Yep, we're just one more thing about, about these frog toxins when I was when I was in the business of tattooing frogs, which I was for remember this well for a spell, only because I needed to mark them in order to know who was who in order to do the behavioral work that I was doing on them. And I tried putting little beaded waist bands around them and I tried a number of things and none of it worked. In part. It turns out the frogs and other necks nor wastes really, or if they have wastes, that if you send something tight enough, you're gonna hurt the frog. And these are little tiny frogs. So I ended up tattooing them, which didn't please them too much. And you have to be really careful, they've only got two layers of skin two or three. So you have to be very, very careful. And I had this little handheld tattoo machine that I was part of my field care in Madagascar. But much like the people in the Brazilian Amazon who use various toxins, as you know, as tips for their darts, or as you know, purgatives for their own health. You have to aggravate the frog, in order to get them to start producing this white milky toxin on their skin. And I was never trying to that wasn't part of my research. I wasn't studying their their biochemistry or their toxins. But what I found was that when a frog was particularly squirmy, and I had to really, you know, hold it for a while in order to get it tattooed. That even when I wasn't aware of it, if I had spent a morning tattooing frogs, and then was uncomfortable in the way that many of us discovered we were at the beginning of COVID. And you're often touching our face and such that if I touched my fingers that had been on the frogs to my lips, or any mucous membrane or any cut, I would get a quick burning followed by numbness that would last for anywhere from a few minutes to up to an hour or two in one case, and that this was very clearly the toxin the lipophilic alkaloids in these frogs that was doing its work, which is, as I mentioned earlier, blocking the synaptic transmission of sensory neurons. Hence the

**Bret** 34:39

numbness and the numbness. perfect sense. Yeah, yeah. Yeah, I should just say because certain people will be wondering, yes, you had a tattoo gun on your study Island in Madagascar. And because the days are long, there's not a whole lot to do. You also at one point did my tramp stamp and I think you did very excellent work.

**Heather** 34:57

Oh, yeah. Are you going to show it not?

**Bret** 34:59

Not today? No. all right all right that took a weird turn yeah didn't

**Heather** 35:06

Yep. Okay but I actually saw that also that included a number of I think interesting rabbit holes but as I was looking into this this combo phenomena which I'd never heard of before I've run into this frog frog Medusa by color, but I've never run into combo and it's in its uses before. I find in various of the the studies the suggestion that this anthropologist Katherine Melton who actually we know by reputation, a friend of ours was her graduate student and I guess you met at some point.

**Bret** 35:36

Yeah, I was on BCI with her for some, I forget whether it was weeks or a month but yeah, Katie was on the island with

**Heather** 35:44

me so she was at that point, so that would have been in the 90s. Mostly a howler monkey researcher right like that was she did these longitudinal meaning long term like time wise longitudinal studies on howler monkeys, but I was fascinated by the suggestion that it she after this French guy back in the 1920s, had been one of two people in the 1980s to separately observe. Some people in the it was the Mirena tribe and resilient Amazon using combo in the way described, it's currently being done in like New York, it's in Southern California. So I found on like a metal show the paper while I found this paper. Okay, so I found this Cool, thanks, Zack. comparative aspects of diet and Amazonian forest dwellers, in which she looks at the dietary ecology of four fourths living indigenous groups, the rrr pericana, on a wet day, and my route Maya Runa. I did not find here what I went looking for, which is her initial observation of combo being used. But this paper is actually super fascinating. So Zack, if I may have this back for a moment. So she, I'm just I'm going to share a few of the conclusions and then show one more screenshot. And then I was talking about this a little bit. She She This is actually this is really good work. She starts with a hypothesis, which I'm not going to share until the end. This is not simple, descriptive. This is not data driven. This is hypothesis driven science, which is particularly tough when you're doing cultural anthropology. So she looks at four tribes, all of whom inhabit what's called Terra firme, Amazonian forest there's a lot of flooded forests there, you know, variety of forests in the Amazon actually but these are all these she she goes, she goes looking for an at four distinct tribes that are not exactly sympatric. That is they don't overlap, but then tribes don't overlap in the Amazon. And that's part of what's going on here. But they inhabit very similar ecological spaces. That is to say, even people who know the Amazon could walk into the forest in which each of these four tribes live and immediately say a lot of similarities in terms of the species composition. So they, all of them have distinct both carbon the plants that they eat and prey diet compositions, and I want to say just a few words specifically about the prey. So the urara are dietary generalists. Specifically here I quote the Aurora consumed the widest range of prey species including sting rays and electric fish, the intestinal tract of a wide variety of mammals, and Pinto ash melt Melton reports in her 92 paper Pinto from 1989 reports that vultures house rats and hawks are eaten by the urara when other meat is not available, but the single most important prey item with the aura was monkeys particularly cappuccinos. Okay, so they're they they, they get capuchins the most. They don't remember if they state a preference for capuchins, some of the other tribes Do state of preference, even when it's not predominant in their diet, but they're really wide generalists. So

**Bret** 38:46

I would just point out the poor Chin's are almost the only thing on that list that sounds like it would be at all palatable for somebody who shares our diet because they're frugivores

**Heather** 38:59

want to eat house rats but

**Bret** 39:00

yeah, in a pinch? Yeah.

**Heather** 39:04

Yes, components are frugivores and freaky boys tastes better than carnivores or omnivores. and full of ours taste tastes good too. Full of wars, competing grazers, grazers. All of our meat animals are full of our a

**Bret** 39:21

rain forest full of our might be particularly awful by virtue of all of the toxins in the leaves of terrible

**Heather** 39:30

oh actually. So we're getting to something interesting here. So the pericana And incidentally, none of these four tribes that she was looking at are any that we have spent any time with we haven't we don't, I didn't least didn't know any of them by name. The power con are specialists on terrestrial game in particular land tortoises tape your peccaries which is wild pigs, armadillo, and pokka, which is a big red. They report they're most interested in eating tapers, however, whereas both the Aurora and there are wet days say that the avoiding tapers, never pass. So they didn't get a lot of papers when she was there observing them. And instantly she took in all of her own food, which is pretty rare for cultural anthropologists, but she took in all of her own food. In order not to rot in her she brought in all of her own food to prevent the local people from either hiding food that they found particularly precious. They didn't want to share with her so that she would get a skewed vision of what she was eating. And to avoid basically changing how much they needed such that they had to hunt more and less change the fractional composition of what they're eating. So really well done again. All right, who were these people? Those were the product in terrestrial game and these are in this wasn't the Brazilian Amazon. Okay.

**Bret** 40:42

So and they avoid eating tape here. No.

**Heather** 40:46

Yeah. Oh, yes. Sorry. Yes. Yep. No, no, no, no, they prefer eating tape here. And the Aurora and they are a wet day, avoiding to

**Bret** 40:54

avoid eating tape. I must say there is no job on earth easier than avoiding tape here. It isn't hard to find this animal is it's really it's amazingly easy not to eat a beer if you're

**Heather** 41:07

hunting all of your own food. And so for those who don't know, tape beers are big. They're really big. And one tape here could feed a village for

**Bret** 41:16

a while. Yeah, but if it's not your thing, I mean, you're not going to find yourself accidentally consuming a tape here. It just that's probably true. Oops,

**Heather** 41:23

I killed the tape. You got to eat it. Yeah, yeah. Nope. Okay, try it again. Brazilian Amazonian people specialize on large birds including macaws and two cats, right? Plus, check this out. I'll see Can I can almost see but not only do they specialize in human cars, but they have macaws as pets. their villages are filled with pet macaws. And their diet is leaning heavily towards macaws that they're catching wild and eating.

**Bret** 41:54

Catching wild but not raising. not raising interest

**Heather** 41:57

led to those pet macaws think macaws are frickin smart they have theory of mind them and and, and pointing to see COVID corvids like the crows and Jays are incredibly smart social long lived generational overlap all of this. They must be appalled.

**Bret** 42:13

So they are cause feeding. Yes, yes, they're feeding these macaws

**Heather** 42:19

the pet the pets, presumably I don't know maybe not.

**Bret** 42:23

I understood you to suggest that they were catching and raising for food these macaws or is no

**Heather** 42:31

no no no, no there's they're hunting the cars and eating them and then they also have pet macaque.

**Bret** 42:35

They also have pet macaws that they never eat. So apparently you know

**Heather** 42:39

this is this is almost a throwaway line in this paper that I found I was unable to track down further but you know that the author here Milton who again seems to have been doing really careful work back in 1992 is when it was published, lived in the villages with each of these tribes for some period of time and you know, it was it was a careful observer and cultural anthropologist and usually a primatologist. Also the RFA unlike all three of the other tribes that she's looking at have no dogs and they have no desire for dogs when asked they say why would we have dogs whereas all the other three tribes are largely have dogs and use dogs to help them hunt

**Bret** 43:19

now when you say dogs are you talking about domestic dogs? Are you talking about forest dogs that they have domesticated?

**Heather** 43:25

I believe she doesn't specify but I believe we're talking about domestic dogs given what we've seen in

**Bret** 43:33

modern change. Sure. Yep. Yep,

**Heather** 43:35

exactly. Oh, one more thing. They are what they apparently also have 45 different classifications for not snow, as you might imagine, but I would imagine they have none. Right? They don't have a word for snow. I'm making that up, but probably not. They have 45 different classifications. I don't know if classifications means words or what? For honey.

**Bret** 43:55

Hmm, that makes perfect sense, right? Oh, man in a in an environment like that where you have so many different source plants?

**Heather** 44:03

Yeah, and age and a lot of different species of bees, although most of the bees aren't going to be making honey. Yep. Yeah, but there are more I mean, there's it's not just a small sliver I think that makes that is going to be making honey is it? It's a bus. It's other eight buses?

**Bret** 44:18

I don't know I am venturing a guest on and I would have said maybe it is but but I don't know. Okay. Or, you know, really the question is make enough honey to be worth pursuing.

**Heather** 44:30

Right? Yeah, solitary B is not going to be worth pursuing. So finally, we have the Maya Runa, who were actually in the Peruvian Amazon, who specialize in pet curries. But they state that they prefer eating tapers and slots. Even though tapers and sauce are harder for them to find and most of their diet consists of peccaries and this is a little bit a little violent so you can close your ears if you don't want to hear how they how they do with the slots when they find them. Quote sloths are captured by climbing their tree lassoing them with a noose made of vines pulling them free and then clubbing them to death on the ground that's the that's the slough killing activity and while she was there probably

**Bret** 45:13

a lot more humane and you know what other options do you have?

**Heather** 45:17

Yeah I mean you can you know you can do is you don't matter the tree and have them fall betting gonna be a fun death yeah which is you know how how at least some like it's at least had the Waorani hind monkeys sauce and things yeah. And oh incidentally spin at the morani Milton the wall Ronnie who are people whom we have spent time around and with in the Ecuadorian Amazon, she points out that the diet of the Mirena or the people I was just talking about actually most closely matches that of the Waorani. So that is that is that is more similar to something that we have known. The Maya Runa have the longest list of foods that they will not eat of any of the tribes she looked at. And here we go, some that are developmental stage specific. So for specifically with regard to howler monkeys, adult Mirena denied howler monkeys, but children do.

**Bret** 46:08

That's exactly the opposite of what I would predict, right? Why? Because howler monkeys are obligated full of wars, and the toxins are labeled to be more dangerous to a developing child or a pregnant woman. In fact, there is a lot of anecdotal stuff and I believe a certain amount of data to suggest that aversions during pregnancy may be about protecting fetuses and things. So anyway, I would have expected an obligate full of war a to taste really terrible

**Heather** 46:42

in a landscape like the Amazon, where there's so many species and the obligate full of words themselves are sampling from a wide variety of Yes, where they're taking in the secondary compounds of the plants that have produced those secondary compounds in order to protect themselves. Right,

**Bret** 46:55

right. Exactly. So anyway, yeah. What is the explanation for?

**Heather** 47:01

I don't know, lots of lots of little juicy stuff in here, right?

**Bret** 47:04

some not so juicy stuff, including macaws. Yeah, which Charles hambly he didn't specifically tell me about macaws. But he told me he was a great Batman of the Smithsonian, or one of your mentors, a mentor of mine on BCI. And anyway, I forgotten why he found himself eating parrot at some point, but he he reported that it was a lot like eating a shoe. So I'm guessing because or rather like,

**Heather** 47:38

Yeah, no, I have I may actually have less interest if I had to choose if I was starving. I had to choose between monkey and parrot. I really don't want to have to ever eat either. But a monkey stands. Well, it's not just for not just for edibility.

**Bret** 47:54

Actually. Oh, I get there. I don't want to eat a monkey because it's a monkey. But from the point of view of what would the meat tastes like? Except for howlers? Which are the exception? All those frugivores probably tastes just fine. Yeah, yeah. And peccaries surely tastes good. Yeah.

**Heather** 48:09

I mean, if you'd like bacon, you probably like bakeries as a pig.

**Bret** 48:11

I bet it's a lot leaner. But and also to

**Heather** 48:16

tapers might you're not No, yeah. Yeah. Because because they're giant ground dwellers. So they're in part. I mean, the intact Amazon doesn't have much to graze, per se. But the browsing at ground level is, I think, I mean, maybe just because there's a lot of new growth that they're going to be able to access and the new growth has fewer secondary compounds. Yeah. And

**Bret** 48:39

I bet they eat a lot of fruit, too. Yeah. And the thing that is most famously delicious, are the paka pacos, and agouti and Qt is supposed to be absolutely delicious. Yeah,

**Heather** 48:55

those are those are big, big rodents. Yep. And any night. pockets are mentioned once you're a good user never mentioned a candy bar and ever mentioned. But I imagine that the large, slow, somewhat dim, ground dwelling rodents get hunted out pretty quickly.

**Bret** 49:12

Yep, yeah, yeah. No, it would be likely Yeah.

**Heather** 49:15

And I'm gonna I'm gonna catch it from all of the capybara enthusiasts out there for calling them dim, but sorry, compared to most of the things on this list. They are. Yeah, yeah. All right. So from the discussion, I'm just going to read a couple more of the things that she has written yet beyond very general and obvious environmental differences. None of the environmental factors I examined appeared sufficiently distinct to explain most of the dietary differences observed. Here we go. Here she is repeating in different language, the hypothesis that she leads with, which I didn't share with you guys yet. These different dietary practices appear to reflect as to the distinctive facial perforations and body decorations of each group, a type of cultural character displacement in which the members of group a secret differentiate themselves from members of Group B or C, by means that are distinctive, but do not pose any actual economic disadvantage. And this, this struck me as interesting, in part for her choice of the term character displacement, which I think we probably need to define here, which I might have called niche partitioning.

**Bret** 50:19

Right? So I'm gonna point out that very connection.

**Heather** 50:21

Yeah, so so these are two terms from ecology, basically, character displacement, referring to two closely related organisms that are often sympatric or, or adjacent to sympatric, one of whom begins to change his actual characteristics in order to inhabit a different space in order to make make use of a different resource. Whereas niche partitioning refers to finding a different niche in which to inhabit. So as not in both cases, it's about avoiding direct competition with a close relative, who would be a

**Bret** 50:57

very close competitor is Yeah, I would say one is the evolutionary consequences of the other. Yeah, so

**Heather** 51:01

character displacement being the evolutionary consequence of niche partitioning. But niche partitioning is also an evolutionary process.

**Bret** 51:07

Right? But so when you describe this to me, I thought that the hypothesis was going to be about people living very close to each other, engaged in niche partitioning, and resulting in character displacement. Sounds to me like these people are sufficiently separated? Well, I mean, that if I'm going to doubt the hypothesis, if I'm if I'm right, in interpreting it that way,

**Heather** 51:35

yeah, let me You keep going. But I unfortunately, I've turned my

**Bret** 51:39

website here, what it sounds to me like, you just read from that abstract, that was the discussion or from the discussion is the argument that the specific preferences and aversions of these groups carry no cost. And therefore, as a matter of culturally separating oneself, you know that it is star bellies versus no stars. But here's what I doubt, I doubt that in isolation, that these could be low enough cost choices to be arbitrary. In other words, anything that you fail to hunt because those people eat it, and we we wouldn't dare write anything that you turn down is a cost

**Heather** 52:29

Well, except that, for instance, the the group that that specializes on large birds, and doesn't have dogs, is presumably not as good at hunting, for instance, tape here and a goatee precisely because the dogs would help and the dogs are a hindrance in hunting birds,

**Bret** 52:48

I 100% agree with you. But then what you would expect is that the specialization would be whatever is optimal over time, it will move towards the optimal diet for that habitat, independent of what anybody else does, right? If the populations are close together, then you could decide we don't eat agouti, and we therefore specialize on parrots. And the reason would be if we hunted gudi, and you hunted gudi, we're going to drive them extinct here. And so you could have like a cryptic partnership where by not hunting the same stuff that your neighbors eat, your habitat, fuels, their access to resource in their habitat fuels, your access to resource and, you know, nobody has to formally exchange anything. Yeah. But if these are large enough geographic regions, which it sounds like they are,

**Heather** 53:41

well, I mean, if you would let us show the map of her stupor here. This is the this is the, this is northern South America. in white, we have Brazil, Ecuador is off the west edge here. But we've got the Brazilian Amazon with the two main states, Pura and Amazonas. And the circles here, this is going to scrub just a little bit. This is the Aurora people, the product qana that are a wet day, they're all really close together. I wouldn't call that close. And then the my route, my Runa are in fact quite distinct, and they're over closer to a Ronnie territory. Yeah, as I mentioned. So

**Bret** 54:21

I think the argument I'm making is that in order for that hypothesis to be right, this has to be effectively within home range distance for the animals in question. Yep. Right. And absent that, what I would argue is that you've got specialization on whatever the optimal diet is, you got specialization, because, you know, to the extent that you're a generalist, you'll hunt everything badly. So you'll specialize on that which is particularly huntable in your habitat. For whatever reason, your diet will move, you know, as there's difference. You know, somebody prefers this bird. Somebody prefers that bird, the bird that's the highest ROI will You know, come to dominate the diet Anyway, you get this evolution towards the optimal diet for your local habitat. And then what I would argue is you will get the tendency to view those other people, the rare cases of an encounter and their weird dietary preferences, as you know, an indication of their inferiority or distinction or whatever, but that it can't be driven by niche partitioning. at that scale. I just, it's too far for you know, maybe in the case of some very far, flighted birds. But other than that, it seems unlikely.

**Heather** 55:35

I don't think that you have falsified her hypothesis based on the point locations of the particular villages that she went, Oh, that's true. We need we need to see the actual territorial delineations of where these tribes exist in the Mirena are farther afield, like their, you know, Far West, which apparently is that way today. Yeah, in fact, it's that way. And farther south from here at the moment, but the other three tribes, she chose, I believe, in part because the historical anthropological understanding, which is obviously nowhere close to the full lifespan of these people's is that they were that they were neighbors. Yep. And and I'm not sure if they still are,

**Bret** 56:18

okay, so this is why you tune in to the Dark Horse podcast, and not all of the other podcasts that talk about the rain forest dietary choices, right? Because here, you get the hypothesis with the prediction. Now, if I am right about the causal mechanism here, then what you will see is the tendency towards this dietary specialization to increase at the borders between and that you will find that those populations in each of these groups that are very far from those borders are much less picky and you know, bellied. Right. Love this. Yeah.

**Heather** 56:56

Yeah. So that's great. There it is. That's excellent. All right. Shall we move on? Why don't we Why don't we move on? Yeah, let's talk about, boy, I can't find anything on my computer at the moment, because it's not organized. It was supposed to be the vaccine, which we spent a lot of time talking about a little bit a few episodes ago. I'm just gonna keep talking until I can find this thing which is not coming up. Here we go. And it's so tiny. Let's see. Nope. The Oregon Okay, can you start talking for a minute while I find this? Nothing about the computer is quite working today.

**Bret** 57:44

All right. Yeah. So I'm going to start talking about vaccines vaccine derives from the term vaca

**Heather** 57:52

fine. So the Oregon Coronavirus update letter I get an email every every weekday I think and two of the most recent ones had such weird errors or claims that it reminded me once again of how politicized this landscape is and why if you are trying to think for yourself, you are likely throwing up your hands in dismay at all of the skalds telling you you absolutely must not take a vaccine or you absolutely must take a vaccine because obviously science says or obviously science doesn't say because those prop those blanket proclamations are are ridiculous, so I can't pull up screenshot for you guys. But I'm going to read from the Oregon Coronavirus update letter from December 28 which says the Oregon Department of Veterans Affairs announced today that residents and staff and it's Oregon veterans homes in Lebanon on the Dalles received their first dose of the of the Pfizer COVID-19 vaccine from consensus health care over the weekend. vaccinations were made available to all staff and residents. The vaccine has been proclaimed safe and effective by scientists and health professionals including a four state scientific safety review group comprised of experts from Oregon, California, Washington and Nevada. Allow me to repeat the phrase, the vaccine has been proclaimed safe and effective by scientists and health professionals. The scientific proclamation is a scientific proclamation because that is the way that science is done by race by show of hands by a desire to move forward. Not by hypothesis and prediction and data collection and analysis. Certainly not now it's by proclamation it's by Fiat. In fact, it's science by Fiat. Well, when

**Bret** 59:41

I ascend to the position of extreme actually unlimited power, it will no longer be done by proclamation that will be done by in cyclical, and cyclical and cyclical scientific encyclicals. And in fact, nature will be forced to abide

**Heather** 59:56

by them. Nature the magazine, no nature, nature. As a process is outside there. Yeah, exactly. So, boy, then we have this I guess you can show this salary from yesterday, the same the same email newsletter from January 1 21 cases of severe allergic reaction to COVID-19 reported in a mulawa individuals employed at Willow Memorial Hospital and recovering. And it goes on and on and on. And in the first paragraph, it does say Oh, actually, it's not as severe allergic reaction to COVID-19. It's a severe allergic reaction to the maternal vaccine for covid 19.

**Bret** 1:00:38

In fact,

**Heather** 1:00:39

the headline the subject of this email, the headline of this email says there has been a severe allergic reaction to a disease, which makes no sense it makes no more sense at that combo is a vaccination for anything, right? This is this is presumably this case, not intentional, not intentional politicization of science. It's just complete incompetence, because this is not a mere copyrighted error. It completely renders this entire thing meaningless. Well,

**Bret** 1:01:05

I would bet it's, you know, it's beyond an error. I would bet that somebody having been browbeaten into the belief that these things are good and those things are bad, right did not internalize the message here, which is vaccine caused severe allergic reaction. That's a very dangerous phenomenon. I thought vaccines were good. And so some part of them probably made that error because it resolved the cognitive dissonance.

**Heather** 1:01:31

Yeah, I mean, in fact, the fact that someone experienced a severe allergic reaction from vaccine, that's going to happen, no matter what the vaccine is all, you know, any anything, which is likely any medicine is likely to cause some allergic reaction, some extreme reactions, perhaps even some fatalities in some people. And that's terrible, and also true, and also says very little about the overall efficacy or safety of that of that thing. But when you have the report on it, which conveniently disappears, the salient term Yeah, you are left to wonder what it is that you are supposed to believe,

**Bret** 1:02:07

right? In fact, what a vaccine does is almost literally create an allergic reaction to the pathogen. That's how it works. That's

**Heather** 1:02:16

that's when a vaccine is working appropriately when you talk

**Bret** 1:02:19

about it in those terms, but that is effectively what is going on. So the whole thing turns to gobbledygook if you tried to morally sort the logic, and you know, write your titles based on it. Yeah. Yeah. So gobbledygook for some reasons, gobbledygook

**Heather** 1:02:34

for some reason. You want to talk about some of the other treatments for COVID that are out there you want? Yeah, but let's, let's

**Bret** 1:02:43

talk a little bit about them. Zack, are you able to show things that I sent you or this? So unfortunately, we're a little discombobulated here? Because Okay, can you show the, the piece on remdesivir. And that's that. That's not. Okay. So this is a piece that was forwarded to me by a good friend. And what it does, actually,

**Heather** 1:03:24

I don't, no one, including me knows which piece you're talking about yet the piece on

**Bret** 1:03:27

your screen there, which is now up. So the argument here is that the policy in the US in particular, the policy in the US appears to be to basically convalesce in place, if you contract COVID until you are sick enough to go to the hospital, at which point we deploy various remedies. And the position that this journalist takes is that in fact, this is an absurd response, because what we have which Americans are largely unaware of, is a large body of information about treatments that are highly effective at reducing harm, both preventing people from getting COVID and reducing the harm when they do get COVID. And that this is somehow fallen by the wayside. And I will argue that this is because what we have is a system in which our narrative surrounding everything has been politicized. And that this has resulted in basically a run of the mill kind of corruption that causes the narrative to be bent to various people's desires. And this is not only affecting our discussion about vaccines, which we will get to shortly, but it is directly affecting both the policy surrounding when we treat people. In other words, do we wait till you're sick enough to go to the hospital or do we treat you upfront and basically the argument is, if you're somebody very important to you, You're going to get medical treatment right away, we will treat you with things that work. And you will miraculously have a mild case. But if you are a commoner, you will get very, very sick before that happens or you will recover. And so the argument here is that remdesivir, which is the gold standard in standard channels is actually not a very effective drug at all. It is, at best mildly effective reduces the course of infection by a couple of days.

**Heather** 1:05:29

But it's expensive. It does have that going for it does have that going for it. Where as avermectin or avermectin

**Bret** 1:05:37

respectin ivermectin appears to be highly effective. It is a drug with a long safety record. I was going to read so yeah,

**Heather** 1:05:46

I've got I have a couple here that I want to read something. Yeah, maybe it won't be the same thing you would found but maybe it will be. So you can show it if you want Zach, you don't have to just one paragraph early on not directly related to what you were talking about, Brett. This fixed fixed narrative has led YouTube, Twitter and Facebook to practice a new and insidious form of censorship under the dictum that emerging studies are fatally flawed and fostered by fringe elements. Quote, there's no evidence ivermectin has been proven a safe or effective treatment against COVID-19 declared an Associated Press fact checking article. Similar reports regurgitate government pronouncements that journalism at its best, ought rather question. And then down below. We have this section on avermectin three paragraphs I'm going to read in a 20 excuse me in a 2011 article, the scientist who discovered ivermectin in 1975, in a patch of Japanese soil, Satoshi Amora, called it astonishingly safe and quote, a wonder drug akin to penicillin and aspirin. After more than 25 years of use a review in the Journal of drugs and dermatology concluded it were met and continues to provide a higher margin of safety. But the US Federal, excuse me, but the US Food and Drug Administration seems bent on ignoring both safety and efficacy findings. In a q&a on ivermectin, the agency lists side effects from nausea and swelling to neurological events and liver injury. flcc President Dr. Pierre koray described the list for me as quote, purposefully alarmist indeed, despite more than 40 positive studies and ivermectin for COVID, the FDA seem stuck in a time warp. Its website called the Australian study from eight months ago recently released while still declaring without acknowledging numerous studies, that additional testing is needed. That's fine. If only there was support. Just three studies and avermectin are proceeding the United States and none is funded by the National Institutes of Health or any other US Agency.

**Bret** 1:07:39

Yeah, I find this absolutely stunning. Here's another section I thought was pretty remarkable. for 25 years, ivermectin has been distributed free in 19 African countries to control parasites. Is it a coincidence that those countries had 28% fewer COVID deaths and 8% fewer cases than 35 other African nations? Is it a coincidence that the 214 million resident Indian state of Uttar Pradesh pradesh which distributes free ivermectin has a COVID death rate that is 116 that of the United States? 166? Sorry, I'm reading very small font. Yeah, it is. So are those things conclusive? They're not because you have an uncontrolled environment, but they are certainly provocative. There was another section I wanted to I want rectum the most promising COVID treatment today I wanted to developers the Nobel Prize for medicine in 2015, and a place in the World Health Organization's model list of essential medicines since the 1980s. With billions of doses given the drug has cured crippling tropical diseases that have devastated African countries while curbing scabies lice and protecting livestock and dogs from parasites. spurred by pre COVID studies showing ivermectin killed Zika and other viruses. Australian researchers last spring, tested the drug in a petri dish where it obliterated Coronavirus virus in 48 hours since then, more than three dozen studies have shown good results in preventing and treating COVID-19. To be sure some of the results sound too good to be true and are based on small patient samples. Others are available only an online draft and have not been officially published. But 16 studies have been peer reviewed and 11 are randomized control trials that compared patients who did and did not get the drug. So that is all very provocative now. Sure, what I believe is emerging and I don't know quite how to cast it has nothing to do with ivermectin and remdesivir. Or vaccines in particular is a more general malady. Where

**Heather** 1:09:49

before you do that, can we just finish this before you go into more general malady, this paper that you were just reading from links to this site, Zack, and it is called It's it's just a COVID-19 basically Clearinghouse site, which is done anonymously. Let's see, I had found the facts before I don't see them here. Oh here are frequently asked questions about this site says we're a bunch of researchers who aren't interested in going public. But we are basically just putting together evidence for a number of a number of different drugs that are currently being used to treat this is not about the vaccines, it's about drugs for treatment, rather than vaccines for prevention. And they're they're collated information on ivermectin here shows tremendously. And this is a complicated page, I'm not going to walk us through what it is. But this this page is still up, see 19 avermectin, calm, and you can go through, you know, efficacy across lots of studies of avermectin, vitamin D, hydroxy, chloroquine, zinc and remdesivir, which has much lower efficacy. But interestingly and fairly appallingly. What we find is now can't find the site that Oh, here we go. Twitter suspended the account that was being used to, to basically publicize this work out COVID analysis on December 27. And there's no explanation or response from Twitter as to why what exactly on this page is dangerous. It is a is a collation of extent, research on a number of possible treatments for the scourge that is threatening to wipe out people and economics across the entire world. What exactly is so dangerous about this?

**Bret** 1:11:55

Right? And why does Twitter think that it is expert enough to decide whether or not we are able to look at this and discuss it? Right? Who the hell are they?

**Heather** 1:12:03

Yeah. And so the site is still up, but the Twitter account is not.

**Bret** 1:12:07

Yeah. So you were so yeah, what I wanted to argue, is that what we have, what we find evidence for across the board, anywhere where we take the narrative that we are handed, and we scrutinize it with tools that we happen to have, because we're biologists, right, obviously, we're not epidemiologists, we're not virology specialists, right. But the point is basic scientific literacy, a willingness to dive into these things that we find again and again, is that the narrative that we are being handed and the narrative we see being enforced on social media is itself garbage and politicized, and one can deduce what its purpose is, by virtue of the fact that clearly, it is willing to harm people in order to keep the message simple. And on track. In other words, why all else being equal? Why would the narrative center around remdesivir, a drug that has dubious effectiveness and systematically fun ivermectin, when the safety and efficacy appears to suggest exactly the reverse would be wise that that is a preposterous thing for do. And the obvious result is that people will be harmed, right, we should be thinking about treating COVID. Treating COVID is almost certainly a good way to prevent people from communicating COVID. And so you know, there's no way in which this is responsible, or if it is somehow responsible, why are we not allowed to have the discussion that then will inevitably reach that conclusion, because we will discover the reason that remdesivir is the right

**Heather** 1:13:46

choice. And even if, even if these two drugs ever machten remdesivir, had exactly the same results. And a variety of research has been done with regard to treating symptoms of COVID-19. The fact that it's ever macton that has been around that was discovered in Japanese soil in the 1970s, apparently, and has has been used in millions of people for other conditions, and therefore has an decades long history of studies of safety of places where it's not presumably, we should prefer that drug, all else being equal over a newer one, just as if there is a vaccine that has made in the traditional style that is available, all else being equal, we should prefer that over an mRNA vaccine simply because there was no way proclamations from scientists not withstanding to know whether or not the new technology is safe yet we simply cannot know right?

**Bret** 1:14:48

We the public, right? We who are united against COVID and its transmission ought to prefer that on the other hand, there's a very small group that might have exactly the opposite. second sentence, oh gee, who could they be? Well, and we see this all the time in pharmaceutical development where basically, patent protection expires on a drug. And some new, either a new drug that isn't any better is introduced, because it's patented, it's got a little tag has been made in order to make these things more profitable. And the fact is, this is just a place where markets do a piss poor job of managing the public health. So anyway, we see this all over the place and you. So I don't know what the patent situation is for ivermectin is, is looking to bring in that description of how long it's been around probably cheap and readily, you know, generics available.

**Heather** 1:15:45

And just, you know, just one other line of evidence to support that is if it is really being deployed at the millions of people level across Africa, it's, it's probably not a super expensive drug to be to be producing or to be giving

**Bret** 1:15:59

out. Excellent point. And the other thing is, it has generated exactly the natural experiments that would allow you to deduce pattern. In other words, the fact that you've got a bunch of different African countries, you know, I think it was 18 of them had widespread and 30 some odd that didn't, that allows you doesn't mean that that's why the 18 seem to outperform the 30 some, but it's a strong indication, and that itself is a testable hypothesis. So there's lots of, there's lots of landscape to look at in order to figure out what is actually going on and what it says about what we should do. Yeah. Alright, so should we move on to the the vaccine question here? Oh, okay.

**Heather** 1:16:40

What do you got? Well, I thought we'd already done it. No, we, uh, we

**Bret** 1:16:44

did the the remdesivir versus on effect,

**Heather** 1:16:47

we do want to hit Ted Wheeler before we're done. We're gonna work

**Bret** 1:16:49

over. Okay. Okay, so the last things that could you show the I just say

**Heather** 1:16:55

we want to hit Ted Wheeler before we say that? Yeah, I might amount that.

**Bret** 1:16:59

We are, we're peaceful people. I want you to show the New York Times piece on the AstraZeneca Oxford vaccine. Okay, so I cannot read

**Heather** 1:17:13

that show it on the other screen. There we go.

**Bret** 1:17:16

So in any case, what we've got here is a situation with the vaccines that is far more interesting and in which there is far more for us to discuss, then I believe we realized we have to first past the post vaccines of this very new type, this mRNA vaccine platform which is untested in humans which has only been around tested in humans for the last nine or so months. And then we have a third vac so

**Heather** 1:17:46

those are the the makers of those with which are the names with which people will be familiar are Pfizer and Madonna. Right? Okay, so the Pfizer, Madonna vaccines are separately created mRNA vaccines, which is a new vaccine technology, which the advantage of which is they can actually be developed in like a weekend, apparently. Whereas traditional vaccines tend to take a lot longer, but you can't but Okay,

**Bret** 1:18:11

now, but we have no safety record, right? of their long term implications, we have no concept of how they interface they're extremely expensive to deploy, because of the need for extreme refrigeration, etc. So anyway, I feel like we shouldn't have to say this every time but because we're going to get clipped again and again, being called anti vaxxers. And all of this garbage. Let us hope that these mRNA vaccines are what they promised to be this is an entirely new mechanism for delivering vaccines. And it is quite possible that these will be lower side effect better. And because they're rapidly deployable. This may be the answer to some of humanity's greatest new problems, which involve emerging new viruses, either sack bioterrorism or who knows what

**Heather** 1:19:00

else COVID-19 won't be the last if mRNA vaccines are effective and safe. That could be the way that we survive the emerging viruses and even perhaps viral bio weapons that could be emerging,

**Bret** 1:19:11

right? So you and I are rooting for these vaccines, I'll be an awesome addition to our antivirus clever really helps. Right? On the other hand, frightening that we are going to deploy these at such large scale with some of the most important people in society in the midst of a pandemic. With out properly investigating, were properly considering what it means to deploy something on which we have no long term data on the safety we don't know if these costs something, you know, months or years years down the road.

**Heather** 1:19:44

So actually let me say that if if these mRNA vaccines five years down the road do do prove to have been Safe, safe ish relatively safe, you know, there will always be some some problems right? If they do relatively harmless, okay, relatively harmless, and a new virus emerges. And a mRNA vaccine is produced very quickly to deal with that virus, we would not sound the same way about that mRNA vaccine as we do about this one. Now, there are still concerns with any brand new vaccine that doesn't have a long period of safety testing. But just as I believe where you're going to go here with regard to the Oxford AstraZeneca vaccine is that that is a traditional vaccine. Is that right? Yes. And without knowing anything more than that about it. I prefer that one simply because the traditional way that we have been developing vaccines has problems for sure. But we have decades we have many, many decades of safety testing and efficacy testing and all of this on this route by which to end up with vaccines. You and I are more vaccinated than just about anyone else we know because of the time we've spent in the tropics, all of this. And that like yes, at the moment because we don't have the the history on mRNA vaccines, we are concerned about what we don't know. But if it is a class of vaccines that has five or 10 years behind it, at that point, every new vaccine that is trotted out in that with that technology, will will cause less concern, it should cause less concern,

**Bret** 1:21:23

it should cause less concern. And so there's a question, we now have a third vaccine emerging slightly later, it has what should be several things about it that should cause us to strongly prefer it. One is it's a normal vaccine that doesn't require extreme refrigeration. So it's easily deployed. It's comparatively cheap, and AstraZeneca, who has teamed up with Oxford to generate this thing has agreed to have it be profitless for I don't know what the period is, but for an extended period of time, so they've offered it into the the public space. I think it's I think it's three bucks a dose or something like that. It's very inexpensive. We have the email, yeah,

**Heather** 1:22:12

it's like 250 a dose, if deployed by the government $10 a dose if if privately acquired something like that

**Bret** 1:22:20

right now. Very interesting fact about it. So you will hear reported everywhere, that it's much less effective at preventing COVID. Now, this makes an error in two ways. One, we don't really know what the mRNA vaccines are doing. In fact, there is caution in some circles about the fact that it may be that people who have been vaccinated with these mRNA vaccines are still perfectly capable of transmitting COVID to other people. Now, they just

**Heather** 1:22:50

don't show symptoms as the idea or they'd never show up as having tested positive somehow somehow.

**Bret** 1:22:54

So I don't expect it well, I expect we will find that it does prevent the disease and right people don't therefore transmitted we don't have that we don't have it, it's all too new. But in this case, you will see a well okay, those mRNA vaccines are 90 or more percent effective. AstraZeneca, unfortunately, is only 60 some percent effective. But get this

**Heather** 1:23:20

but actually the second sentence here says a clinical trial revealed the vaccine was up to 90% effective

**Bret** 1:23:25

why why they made an error in the test did those who were doing the test, okay, okay. In this Welcome to complex systems, they made an error in which they accidentally halved the dose, right? So they ran an experiment, they didn't mean to run, and they now have data comparing what they thought was the full dose, which has something like 60% effectiveness, and half the dose, which has 90% effectiveness very much like these mRNA vaccines, right? So okay, hey, why does that happen? an

**Heather** 1:23:59

inadvertent experiment that also runs exactly Canada, what you would expect and makes you wonder, how is it that the people who develop the vaccine decide on the dosage in the first place,

**Bret** 1:24:08

right, and doesn't adjust say that what we ought to be doing, one of the things we ought to be doing is figuring out you know, whatever the mechanism is that we figure out what a dose is, and whether or not you need to have them, we need to vary a lot of stuff in order to figure out Did we miss it? Because we, you know, we're 10 times over the magic number, right, right. You know, and in lots of cases, we've seen stuff like that. So, anyway, the point is, okay, so it turns out that the most effective dose is probably half what we thought or maybe it gets even better if you cut it below that, who knows? Yeah, right, when that'd be good news. Right, so why does it happen? We don't know. I sort of have a guess, which is if you think so.

**Heather** 1:24:49

Is this also a two dose vaccine like the mRNA vaccine? Yes, so it's a half. So the idea is it was I believe it's 90% effective when it was a half dose to start and then a full dose for the second one is If memory serves, yeah, I think

**Bret** 1:25:01

that's right. But so anyway, I was going to take a guess I was gonna say one of the things that you and I puzzled over at length on early live streams, was the fact that the thing that you see in the textbook about how a virus gets you doesn't predict the fact that there's like a threshold dose that briefly passing through a room in which some very COVID sick person has been exhaling probably doesn't get you sick. But if you spend a few minutes there, it probably will. So there's some thing that fills up, there's some nonspecific immunity, that gets overwhelmed. And at the point that it gets overwhelmed, a virus does what's in the textbook, it invades your cell, and starts replicating, right. But until then, the nonspecific stuff is probably good enough at clearing the garbage without recognizing it.

**Heather** 1:25:46

So your prediction here is that the higher dose, it's actually making people sick,

**Bret** 1:25:51

right? That it's basically so what this What does vaccine, so

**Heather** 1:25:56

that's totally consistent with other vaccines, right? It's you need you need to trigger your immune system to recognize and develop the right response, without triggering it so much that you get full blown whatever it is,

**Bret** 1:26:09

you won't get full blown, you won't get the disease from the vaccine no matter what. But the test was if vaccine right? Are you vulnerable if you encounter somebody with COVID? So scroll up? If you can,

**Heather** 1:26:20

sir, I did not mean to imply No, that's okay.

**Bret** 1:26:23

Keep going. Keep going. Alright, so here, you've got this. adenovirus vaccine, this is the AstraZeneca Oxford vaccine, it enters the cell, and it does a much more standard thing than the mRNA vaccines, the mRNA vaccines bypass the nucleus. And what they do is they dump mRNA into the system, which ribosomes then transcribe into proteins that then get displayed to the immune system. In this case, you have this virus, this harmless virus introduced DNA with the proper information in it into the nucleus in a standard way, the nucleus then transcribes it into mRNA, which then does affect with the same thing from there that the mRNA vaccines do. So keep scrolling,

**Heather** 1:27:16

let me just say that the only reason that this feels less science fictiony than the mRNA vaccines is because we've been doing this for decades already. It is inherently moved from the realm of science fiction to science fact, decades ago, and the mRNA vaccines moved from science fiction to science fact, in 2020. And therefore, we don't know what all is downstream was that literally.

**Bret** 1:27:39

Yep. So anyway, the hypothesis that we are playing with here, which again, this is not our area of expertise, but just based on everything that we've talked about with respect to threshold doses, and the like, the possibility of the reason that a higher dose gave lower effectiveness is that there's some fraction of the immune system that is capable of recognizing particles that look something like the spike protein of stars covi to and if you gum them up with these viral particles with these a vaccine particles, these vaccine generated particles, that it may, paradoxically open up the chance that a COVID particle that you encounter in the wild can get by because they're all gummed up. Oh, so anyway, mechanism, it's a hypothesis. Okay. So anyway, it's a testable hypothesis, which is what we like. And, you know, so and that predicts things about the curve that you would see for various dosages. Yeah, right, that effectively higher would give you lower effectiveness at some point, because it would effectively gum up all the works. But okay, so back to the point here, we got three vaccines, two of them are in a totally novel platform, and therefore carry what you and I have described as high risk, which does not mean high harm, it means we don't know what happens long term when you've had this and things on the list probably include things like autoimmune disorders that will give you an autoimmune disorder, no idea, hopefully not high risk, would it cause high uncertainty because high uncertainty Exactly. And we have seen a bunch of stuff in the article that we covered a couple of times livestreams ago, about the very poor reporting on the side effects of the mRNA. Vaccines auto loom large here to people are getting very serious reactions sometimes to these things. But anyway, in a universe where you've got three vaccines, two of which are of this very extraordinary new type that come with high risk because high uncertainty, one of which is on a familiar platform, it's still new, but we know a lot about it because a lot of It isn't new, right? The basic virus that delivers the thing isn't new. And so if you want I want, right. And it is being portrayed as much less effective, even if it was 60% effective. I think I still prefer this one, you know, and

**Heather** 1:30:15

why is that is AstraZeneca? Not an American company? Like what? What British?

**Bret** 1:30:19

Well, actually, I don't want to say it's pretty, I think it is. But Oxford, certainly. Right. is a British institution.

**Heather** 1:30:24

Yeah. And, you know, we just we put all the US we put so much of our funding to vaccine development and not to treatment, not to these other other drugs. And also, you know, it won't be I, if we're right, that AstraZeneca haven't signed up with Oxford indicates it's not an American company, much of those, the return on investment would be far lower for the in house in American house developed vaccines, that people start preferring the traditionally developed vaccine that came from outside of the country,

**Bret** 1:31:00

at the very least we ought to be discussing, you know, the cost of a dose is very different. The architecture you need to deliver the dose is very different rural areas already have this here, we ought to be discussing, okay. We're going to give it to all of the medical personnel, right? makes sense to protect medical personnel? Can we give a quarter of them or half of them this other one, in case there's something we don't know? I mean, that obviously makes sense. Right? So the point is, you've got any

**Heather** 1:31:33

any demographic population, a demographically described population, should get a mixture if we are going to continue to learn not any combination, but some people in that demographic should get one of these types of vaccines in some should get the other and then those results should be tracked.

**Bret** 1:31:52

So the disturbing conclusion, I think, from the last little thing, where we talked about the comparison between two drugs, where the world seems to have concluded the opposite of what would make sense, yeah, the comparison here between these vaccine technologies, the nonsensical discussion early on about face masks, the nonsensical discussion we are now having about face masks were outdoors, people are still looking at each other as morally deficient for not wearing them. I

**Heather** 1:32:24

can't do a thing on that this week. I won't go there. Now, the

**Bret** 1:32:27

discussion that we are having about lockdown and the inability, seemingly of anybody in charge of policy to juggle the various costs of lockdown versus not lockdown. All of these discussions are, as far as I can tell, complete garbage one afternoon with five smart people and decent information would cause a radically different policy decision. Yep. Then we are being fed. So what we've got is just some narrative generated some way now either it's generated through incompetence, or it is corrupt, which I think is more likely we're at every

**Heather** 1:33:10

little stage of the process, we're lucky enough to have both.

**Bret** 1:33:14

Undoubtedly, the incompetence is a feature not a bug from the point of view of the corrupters. Yeah, but it is amazing, I think how far we are likely underperforming by virtue of the fact that on it, you know that what drug you're going to take, and when you're going to take it has apparently been politicized, right? Can you think of something that could possibly be a less political question, right? So I don't know what we're gonna do about this. But the whole narrative surrounding COVID, which should unite us, and we should have our very best people coming up with the very highest quality insights, they would no doubt Magnus, and there

**Heather** 1:33:52

should be pushback against them. And no amount of pushback should be read as a political maneuver, right, that their work shouldn't be political, or politicized. And on the criticisms and trying to figure out if they're actually saying what they think they're saying, and all of that shouldn't be read as political either. Right? This is, this is what science is supposed to do.

**Bret** 1:34:11

And we should be discussing this on Twitter and YouTube and every other place without fear of being thrown off the platform for having violated these sacred conclusions,

**Heather** 1:34:24

or being placed into your tribal affiliation on the basis of whether or not you are wearing a mask when you're outside or are questioning whether or not to take the new vaccine, or are 100% going to take it no matter what you're willing to call people dummies if they don't, you know, none of this is smart to it. Any any of those responses is, at best dim, and at worst, as you said, corrupt and corrupting.

**Bret** 1:34:49

Yeah. So just think about how different the prescription looks. If you just sort of look at these analyses. I mean, these analyses could be wrong. Maybe we've seen the wrong stuff, and there's compelling stuff elsewhere. But if this stuff is right, and the answer is, don't close your state parks and other stuff, encourage people to spend as much time outdoors as possible, because among other things, vitamin D, and they won't lose their minds. Okay? That's good, vitamin D won't lose your mind. Those are two protective things. If you get sick with COVID, you probably want ivermectin and you want it right away, rather than waiting to see if you get super sick. And from the point of view of vaccinating people, we've got some new technologies, which are promising, we've got a tried and true one, which is also rapidly developed, incredibly impressive there. And may be equally as effective, much cheaper, right? So at least some of us might be easier to deploy some of us it'd be getting that one instead. And maybe the fact is, we should be trying to get that to as many people as possible, because it's a better bet. Right? So that's a, you know, that's like, not radical, except in an environment where we are told that that's all heresy,

**Heather** 1:36:08

right? Because if you take that approach, you can't get looked at and immediately been put in to be put in a box and be be labeled and be dismissed or embraced on the basis of what it is that you concluded. It is, it is actually responsive to what the research says. And I want like you and I have talked extensively on here in the past about why we don't like to say, you know, what the data say, right, like it's not, it's not about data driven. It's about having a model of the universe and testing that model over and over and over and over again. And whichever parts of that model, keep on persisting, keep on not being falsified as you test your assumptions and your ideas and your predictions over and over and over again. They The longer they persist, the greater the chance is that what you've got, there is a bit of the truth, a bit of reality that is actually reflective of this objective universe that we live in, regardless of what anyone else says

**Bret** 1:37:05

about it. Yeah, yes, the, let's put it this way, the level of our failure does not appear to be closely connected to the difficulty of the problem. It's a difficult problem, but it's amazing what people have put together and then somehow we are going to ignore or demonize or whatever out of existence. Who knows what cost? That's

**Heather** 1:37:27

right. Okay, do we want to say something about our erstwhile Mayor? Or, or should we save that?

**Bret** 1:37:33

Maybe very quickly, because quite timely. Yeah, it is. Yeah.

**Heather** 1:37:37

So I have it here if

**Bret** 1:37:39

you want to. Yeah, why don't you show it?

**Heather** 1:37:49

This is what a two minute. So it's, it's playing? I know, it's playing on my computer not on? I do not know what just happened. Okay. You can show my computer if you want, because I've also got it.

**Bret** 1:38:06

Oh, okay. can't play? Well, we can sort of, say what it is to Ted here has.

**Heather** 1:38:15

So this is actually a quote, my Ted Wheeler is speaking. I think this is yesterday. In the wake of riots by an Tifa. Throughout, I think it was north or northeast Portland, on New Year's Eve,

**Bret** 1:38:34

and including attacks on the federal buildings downtown

**Heather** 1:38:37

in downtown, which is the Northwest or Southwest, whatever, right across the river. And he was just it's just so much of the same garbage that's been happening since the end of May almost almost uninterrupted. And should we just go on or should we let him show it?

**Bret** 1:38:57

Yeah, why don't you show it?

1:39:04

My good faith efforts at de escalation have been met with ongoing violence, and even scorn from radical and Tifa, and anarchists. In response, it will be necessary to use additional tools, and to push the limits of the tools we already have to bring the criminal destruction and violence to an end. lawlessness and art anarchy come at great expense. And with great risk to the future of our community. It's time to push back harder against those who are set on destroying our community and to take more risks in fighting lawlessness. In closing, once again, I condemn anyone who engages in violence or criminal destruction, no matter what radiology.

**Bret** 1:40:04

All right. So that is our mayor. Finally figuring out which way is up. It's about time. It's amazingly overdue, which, you know, one does not want to punish the man for finally realizing that he's going to have to enforce the goddamn law against people who are willfully destroying things in pursuit of at best, a nonsensical, utopian vision of Portland and how the rest of the world should look. Now, I did notice, and I thought it was particularly delightful that in his statement, he says, My good faith efforts a de escalation had been met with ongoing violence and even scorn. Right, as if violence weren't bad enough, there has been Gorn. My

**Heather** 1:40:55

actually surprised and actually a little hurt that they don't love him for all of his iPhones here, they never will know it sin. They, they, they won't. They will, they will never come to adopt. You didn't know

**Bret** 1:41:09

they won't. And hopefully that message sticks because if I am not mistaken, he is in the process of regrowing a pair. I mean, yes,

**Heather** 1:41:19

let us help us is landed on his seasonally appropriate grounds reading spot

**Bret** 1:41:25

and regrown a pair, he is regrowing a pair it will no longer be true if this process continues that the only thing about him that is male is his pronouns. Alright, I don't know why I said that. But he does have three pronouns. I have never seen three pronouns before he declares three pronouns not just the

**Heather** 1:41:42

usual to you got to be well covered. He him has

**Bret** 1:41:45

Yep, he does. So anyway, this is good news that he will be enforcing the law. He does.

**Heather** 1:41:51

I mean, if you think you Well,

**Bret** 1:41:54

well, let's put it this way. I think that this state actually be fed up. I think at this point, he has realized that there's no there's nothing down this road. Right. And it is amazing to that. I mean, these people literally lit his building on fire with his neighbors present. Right.

**Heather** 1:42:12

And he apologized to the neighbors and moved.

**Bret** 1:42:15

He moved. I mean, I think apologizing to the neighbors made good sense. But

**Heather** 1:42:20

actually, I'm not even sure he apologized. I think he might have apologized to an Tifa. He did. Okay, Zach says the neighbors.

**Bret** 1:42:27

But in any case, as resident support London, it is about time, it is amazing that it took so long to get here. Let us hope that he does a good and competent job. He does say the right things in that clip about the fact that we will need to avail ourselves of new technologies and apply the ones we've got. Hopefully it's done well, but

**Heather** 1:42:46

that sounds ominous. Okay, it does. But

**Bret** 1:42:48

nonetheless, you know, you have ongoing lawlessness, obviously there's no choice here. So

**Heather** 1:42:54

Well, I mean, they could have fully availed themselves of the technologies they had from the beginning. Well, in fact, I think that would work.

**Bret** 1:43:01

He kept taking them off the table. Exactly. Yeah. Yeah. So it's, yeah, it is good news. Hopefully it works out. All right. All right. Maybe we have reached the end. I think we have reached the first live stream Episode

**Heather** 1:43:14

61. Yes. So we will take a 15 minute break. And for those of you who are watching on YouTube, be back for our second hour hour plus, to answer your questions, super chat questions that you ask in this hour. And in the next hour. We have that new first against the wall club. stuff available at dub dub dub dot store dot Dark Horse podcast dart.org Dark Horse dot moderator gmail.com can be emailed with logistical questions like how I posed the question, when is the private q&a? Speaking of the private q&a that's available on my Patreon once a month, we did ours

**Bret** 1:43:52

last week. It may have other questions good are

**Heather** 1:43:55

so good, and it's a lot of fun, and it's small enough that we can watch the chat as it happens and actually interact with the chats on which you know, we don't receive the chat, but

**Bret** 1:44:05

please keep the scorn to violence okay. No, I would say it's limited by virtue of the technology but you can sneak a lot of scorn through a chat that's defeated if they did

**Heather** 1:44:17

Yeah, please, please give the scorn to a dull roar. You have your second monthly Patreon conversation tomorrow

**Bret** 1:44:25

Lucian conversation will happen tomorrow had the coalition of the reasonable conversation this morning was quite excellent as it has as it has been.

**Heather** 1:44:34

And in the next hour we will among the other questions that you guys asked during Super Chat also as his become our want answer a question voted on on the discord server, which you can also access at either our Patreon and maybe that's it. Happy New Year to everyone get outside.

**Bret** 1:44:53

That's it. Yes. Happy New Year. I hope to be joining you in 2021 shortly. All right, be well