Bret and Heather 14th DarkHorse Podcast Livestream\_ Virus De...

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**SPEAKERS**

Bret, Heather

**Bret** 00:07

Good Morning Vietnam. I don't actually know if we have any fans in Vietnam, but it is morning there I checked. All right. Welcome to the Dark Horse podcast live stream. This is what our 14 is our 14th. I am sitting with Dr. Heather Hyang. As has become our habits, and we have lots of things that we were excited to discuss with you today. Do we have any housekeeping up front other than asking people, please like, subscribe and hit the notification bell and be sure to set it to notify you always have content on this channel as people who do not have it set to always sometimes miss out and they discover that we are going live for example, with no warning.

**Heather** 00:50

You could also said something about dressing Super Chat questions which we will do in the second live stream right?

**Bret** 00:56

quite correct. Yes, we will be addressing your super chat questions in the second live stream. But as an experiment, and I think it went well. I announced on Twitter that I would take two questions from Twitter and so that the suspense does not kill those people who submitted questions over Twitter. I will tell you that. Ra I will have us answer your question about Madagascar's announced cure. And Brandon angler, we will address your question of how our concept of collective consciousness maps on to Young's concept of collective the collective unconscious. So you can look forward to those in the Super Chat section, which we will get to in a while. We'll do this for about an hour, and then we'll have a 15 minute break. And then we will return to address those questions. So you can file Super Chat questions here and we will collect them. And then we will collect some more questions in the second stream.

**Heather** 01:51

And we'll get through as many as we can. But we never get through all of them. Yeah, there's never enough

**Bret** 01:55

time. All right. Did you want to start off

**Heather** 02:00

Yeah, I have a little, little soliloquy like thing to start us off with, which you were then I imagine gonna riff on, and that'll set us off. So I want to start by thanking many of the people in the audience who disagree with us about some or many points, but keep coming back. Nevertheless, to hear what a conversation between two people who are interested in discovering the truth sounds like and hopefully also to learn to figure out where you might be wrong, where we might be wrong, where maybe both of us are wrong, not just both of us. But you know, your understanding and our understanding might both be wrong on something we've heard directly from many of you, and we appreciate you. In the last couple of weeks, though, we've noticed an uptick in people offering critique that isn't really critique. It's fascinating, really, what agendas and traits people will attribute to others when what they actually want to say is, I disagree, and I can't defend the disagreement. So there are lots of names for the various fallacies ad hominem being one of them where you attack the person rather than the ideas. There maybe there may well be reason to disagree with us on any number of fronts. But saying, for instance, as I've heard a number of times, now, you have secure jobs. So it's easy to defend the lockdown is a non argument, pointing out possible conflicts of interest for people making arguments is a legitimate approach. But this one isn't. Aside from that, this is also not accurate. Aside from that this particular accusation does doesn't try to be true, right? We have secure jobs during so lockdown is meaningless to us just isn't true. Most listeners will know In fact, that we did have secure jobs, jobs that appeared secure anyway, they were supposed to be secure for life. But Brett and then I stood up to the loons who had taken over the college, we were tenured. And so very long story short, we're not college professors anymore, and we haven't been for closing in three years this fall. We don't have an employer. So we don't have salaries, and we don't have employer sponsored health care. We do have reached though now far more than we did when we were professors. And that is allowed us to do these live streams and find audience. And that reach was also necessary and getting the wonderful book contract that we've got. And so I'm not saying this to complain. But I am saying that reach is not the same as security or salary. And with regard to the particular topics that we are often interested in raising, reaching people may in fact be in a trade off relationship with security. So I still believe that the vast number of people on both sides of the aisle that is the political metaphor, stemming from the truth in the United States Senate that people, Democrats and Republicans sit literally on opposite sides of the aisle. People on both sides of the aisle are good hearted, good faith and legitimately interested in hearing what people have different opinions have to say, I think the vast majority of people is true for but I see a world that is polarizing fast. And we've alluded to this in maybe each of our last live streams that we see we see this star bellied sneetches and sneetches. Without landscape, people wearing masks and people without people wearing magga hats and people without, and it's become this easy towel by which you can imagine that you know everything else that's true about a person and, and not think any further about what might be true of them.

**Heather** 05:27

I want to say that more and more people on the far left, but what we're seeing right now is more and more people on the far right, are taking personal umbrage at those who see the world differently from them, and take it as evidence that those people with whom they disagree, are themselves stupid, or incompetent, or even evil. And one of the upshots of our rather dramatic expulsion from evergreen is that many good people on the right are familiar with us now, and find value when we say this has I think led algorithms by YouTube and the like to promote our videos along with those of actual right leaning people. In fact, I spent a little time logged in not as myself looking to see what videos were suggested after hours. And sure enough, it looks like we've been, we've been logged that way in among some right leaning videos, which is not in and of itself a bad thing. But it does mean that when the uninitiated when those people who don't know us, click on our videos and find us critiquing bad ideas across the board, bad ideas on the right and bad ideas in the left, we're more likely to hear objections from people on the right, because they're more likely to have had their expectations broken by the algorithms, and by us, but not because we were ever dishonest about where we are. We're on the left. We've been saying that forever. Even as the pseudo progressives at evergreen called us racists and fascists and Nazis and all that jazz. People on the left get upset when we don't critique Trump or the republicans enough. And when we do critique policies coming out of the White House, we are told that we're only critiquing them because we're knee jerk, lefties can't win, except we're trying to thread this, this needle walk this line carefully. And I want to say that Trump derangement syndrome is real. And some people can't see anything coming from the current administration as positive or potentially positive. But TDs Trump derangement syndrome has a mirror image syndrome, which I'll call pro Trump derangement syndrome. And the proud prop derangement syndrome guys can't vote, any critique of the man's actions or policies. And that's just as knee jerk and just as deranged, frankly. So that's not how democracy works. It's not how we any of us, not just threaten me, but any of us refine our understanding of the world to make it a better and better batch for reality. We need people share information to analyze it. And we need critique of both the information and the analysis, we need to imagine that with rare exceptions, nobody is wholly wrong. And nobody is wholly right. I think that some of where this confusion is coming from can be, can be found in how science is actually taught. It's we have we have here and elsewhere critiqued modern education, and specifically modern science education quite a lot, and we will continue to do so.

**Heather** 08:16

But how science is taught and therefore understood by much of the population is you're given litanies of facts to memorize at school. And you aren't offered a dive into the scientific method, which is, in fact, the core of science. So if you what you think science is, is a rote list of facts that are true, have always been understood to be true and will always under will always be understood to be true. You will think that uncertainty is failure, and it's uncertainty. But in fact, it's the exact opposite. Uncertainty is not failure. Total certainty. In fact, especially in the face of new and rapidly changing landscapes, like the one we find ourselves in with this pandemic, is anti scientific, it will likely total certainty who will likely sell soda and chips and anxiety and despair. But it was not going to help anyone gain understanding it. It's like everyone wants super heroes and super villains, but it's never actually fact check to see if they've ever met any of those. Not only are superheroes and supervillains. vanishingly rare, if not completely non existent. News accounts are often going to be a mixed bag as well as our scientific results. This is to be expected. This is what complexity looks like. Demanding certainty and categorical results is a juvenile position. What you'll get if you demand certainty and categorical categorical results is garbage sold to you and less understanding of what the world is, how it works, and how you might change it for the better. So in conclusion, before I hand off to you, we're going to be wrong sometimes everyone's going to be wrong sometimes and also sometimes the reality that we discover or that we reveal that other people have discovered through scientific analysis or just through the passage of time as for instance, this virus reveals itself to be something that we don't currently understand it to be. It's going to be ugly sometimes and not to our liking, that everyone is sometimes wrong first, and that reality is sometimes ugly, our universal truths. You can't change reality, though by denying it, or by calling the people talking about it bad names, or ascribing motives to them that don't exist or are relevant to the conversation. You could, however, understand that reality as best as you can, and use that newfound knowledge in useful and honorable ways.

**Bret** 10:40

Oh, that's excellent. There's a lot there that gives voice to some things I've been thinking as well. I didn't get all the way to coming up with a name for whatever the mirror image of, of Trump derangement syndrome is. But I have been thinking, I have never seen anything like this before. The idea of a president who is beyond critique is an absurdity. And we can argue whether, you know, Trump is much more deserving of critique than others who might inhabit the office. But nonetheless, the very idea that you can't critique him without evidencing some sort of a confusion or a hidden agenda or something like that is very upsetting. And I think there's a way in which it actually emerges from the man himself. And I'm reminded when we weren't college professors, and it was not infrequent that we would end up advising students, we knew our students quite well, because of the way evergreen works. So our students were full time students in our single program that we taught. And you know, we knew them all by name, we knew many of their lives pretty well. And they would ask us for advice. And one of the pieces of advice that I found, I found myself giving very frequently was, don't even consider marrying anybody who doesn't have a sense of humor about themselves. They're just not married material, which I think is an upsetting problem, because there are a lot of people in that category. And it's sad to think that they may not be appropriate for a relationship. But Wow, I wouldn't elect anybody president who didn't have a sense of humor about themselves, either. And while this president does an awful lot of joking, it is almost always at other people's expense. And he is incredibly thin skin, when he any critique comes his way, which, in light of the fact that he does not appear to be expert in the kinds of things that he's being called upon to navigate is, is very troubling indeed. So if I can just add one final thing, you can tell very frequently, what kind of person someone is based on how they deal with the discovery that they have been incorrect. Now one thing you can do is you can rationalize and sweep it under the rug and pretend it didn't happen. Now, you're wrong twice. Not only were you wrong the first time, but you are claimed to have always been in the position that you now hold is also wrong. So that is not an indication of character. And we will be wrong. We have been wrong here. And we have been careful, I think each time we've been wrong in a significant way to come back and say, here's, here's where it was, and here's how the error happened. And boy, let me tell you, it's not fun. I don't like I would very much like to be right. I don't like discovering that I'm wrong. And doing it in front of a large audience is very difficult. But the point is, wow, is it a better deal than sticking with some wrong position? So it's not to admit that you made an error? Because of course, human? And it's

**Heather** 13:42

always hard to navigate? You know, when do you say, you know, I've, I'm putting my internal estimation at 95% on this thing, and I'm going to go ahead and say it, and, and with, you know, without the sort of the error bars built in, and then Okay, maybe it's one, it's that one in 20 times that I was wrong? Do you have to come back and fix it, or you speak in terms of uncertainties and probabilities. And you know, more often than not, not numbers explicitly, but implicit numerical thinking, quantitative thinking. And that drives a lot of people crazy, not just because, again, our educational system is so bad that most people who should completely be able to understand some quantitative thinking actually can't through no fault of their own, often. But it also doesn't fit with a landscape of buy it now, get your answer be on your way, have the thing in your back pocket that you have to say when someone asks you a question, and don't think about it ever again. There is no set and forget over in scientific discovery space. You can't do it that way. No, you

**Bret** 14:51

can't. And in some sense, I think if we go upstream from the problem that you started out, pointing us toward It is a consequence, it's a downstream consequence of the politicization of everything. And I think for those of us who understand why science works, and how delicate the process is, it's very frightening to see it become politicized, because it still looks like science. But what it does is it eliminates our ability to navigate. Well, in all of our interest in blinds us right and you can get it, you know, if you're on the road going straight, you can afford to close your eyes for a few seconds, but the point is going straight is it's a short road at that level, and we have to do better. So we are now seeing this come. I don't know, full circles the wrong term, but we are seeing it amplified by this crisis into something very, very dangerous, where the problem is, where you fall out politically, is very likely to inform your sense of whether or not it is safe for America to open back up. Why does that make any sense at all? This was an empirical question. Now we can, you know, maybe defer over how many deaths we would tolerate in order to get things running again. But I still

**Heather** 16:12

haven't heard that discussion. Actually, yeah, we've raised that as a potential discussion that is worth having, I'll be at dangerous and fraud. But I haven't run into that anywhere. And you know, I hope and presume it's happening some places. But it really seems to be people yelling at each other. About you're wrong about what you believe, as opposed to, here are my values, and we differ on values. And we're going to have to make some difficult decisions.

**Bret** 16:38

It is suspicious that the two things are fused together. If you believe that, that we should open back up, then you believe that the number of people who would be killed by are doing so would be low, right? And in fact, these are two separate questions, people will die either way, we can have a discussion about what number of deaths would be tolerable. And then we can have a discussion about what the evidence suggests would happen. And those are two distinct things. But by fusing them together, we can recognize that this is a purely political discussion. But the scientific community is also artificially united behind these positions that are, in many cases, just absolutely upsetting. And if I can make this personal for a second, there's something incredibly troubling. Some weeks ago, maybe it's months ago at this point, I said what I thought was a perfectly nuanced thing over Twitter about vaccines, which as I said, we favor them, we vaccinated our children. But I still don't believe that we fully understand the dangers or that they're completely safe. And I doubt but, you know, hopefully you heard me say, I believe in them enough that we vaccinated our children. So I'm a believer in vaccine is potentially one of the most important health discoveries in all of medicine.

**Heather** 18:03

Absolutely. And in fact, our family is probably much more vaccinated than almost any other American family simply because of the amount of tropical travel that we've done. And the additional number of vaccines that one gets in order to go to places with a large slew of diseases that you don't run into if you're in the US. So just yet, there is evidence right there. And the first part of what you said isn't a faint. It's not a lie. It is it is absolutely fundamental to the statement. But the second part of the statement is also true.

**Bret** 18:32

Second part is true. And the pushback I got over Twitter, even from some sophisticated people was effectively we cannot have a nuanced discussion here. You will you have to tow the party line. Now. Why is anybody telling me that I have to tow the scientific party line first of all, I've earned a credential that allows me to say what I think and maybe it comes with you know, you can decide my degree is meaningless. Maybe it is but but the point is, it's at least somebody who knows a bit of biology is saying actually, on balance, I'm doing this thing but I'm not all that comfortable with the safety. My work on the question of drug safety in mice suggests that maybe I have even more insight but how is it that

**Heather** 19:17

you can just for those few who don't know what you're talking about, there's a lot more to be said here but you can look at your brother's Eric Weinstein's portal episode or the number 1919. okay with you from I guess it was released while we were in the Amazon, so January of this year, in which you tell the story.

**Bret** 19:33

Yeah. But in any case, it's not you know, at the point that people were accusing us of racism and we were forced to resign from our, our professional lives. These people didn't rally to our defense academia was more or less silent with a few. A few notable exceptions. You know, Robbie, George, and Jonathan hight and hiree coin, right. But by and large, academia was quiet. And certainly there was not enough of a groundswell to protect this Christakis, of course. But in any case, at the point that we want to talk nuance about the safety of drugs or vaccines or any of those things, yeah, we have to do it responsibly. But But to get this pushback that says, actually, no, you have to tie the party line. Where does that? Where does that sense of obligation even come from?

**Heather** 20:32

Well, and it's, it reminds me Actually, of conversations that we had in graduate school, and the nine days, in which we were told by a professor whom we respected greatly in many regards, and who at the time, it was early in grad school, so we were thinking we're looking for who to work with. And he told us that they're just some questions, then that one should not ask, because the answers might be ugly.

**Bret** 20:57

Oh, and the questions were, indeed the questions that are now. I mean, they become a focus for us. And they are the things that make people nervous about evolutionary psychology, and

**Heather** 21:08

they're around whether or not there are differences between the sexes and what they might be, and whether or not there are differences between the races and what they might be

**Bret** 21:15

those sorts of things. Yep. All right. So maybe we should move from this discussion into another land of nuance, where we find a bizarrely monolithic, and on nuanced presentation from the expert class. Zack, do you want to put up the PDF file? Yeah, we can't see it yet. So what this is, is a quick and dirty flow chart that I put together, that basically tracks my own internal understanding of the likelihood of the covid 19 pandemic having arisen through different pathways. So on the far left, here, you can see wild Coronavirus, transmitted directly from a bat to a human in the wild. And I've got that at something like a 2% likelihood. And then there if you look at the second box, from the left, you see it having gone from a wild bat to a human through the seafood market. So not somebody traveling through a cave. And if we were to that, if that were to have happened directly, I would say there's probably a 2% chance of something like that having happened. If it went through an intermediate like a pangolin, then I would give that maybe 3%. And my point here is not to defend each of these percentages, you'll see that the date here is may 9, when I initially intended to show this diagram, I didn't change it because I have seen nothing since May 9 that has appreciably altered my understanding of these probabilities. You'll see summer

**Heather** 23:01

we talked in some depth in the episode, it's called unintelligent design. Think about why you put why we both put the chances that this was actually some sort of a hybrid, or genetically engineered virus at such a high number. Yes. So you defend these numbers, not in terms of the actual numbers, but you defend the relative values in an earlier livestream.

**Bret** 23:27

Yes. And in fact, I will say that the estimate my estimate of how likely This is to be an engineered virus has actually gone up since that live streamed based on further analysis that I've seen. So anyway, my point here, I've got a couple of them. One is, internally, whatever dialogue you're having with yourself, you'd be wise to put together something like this A, so you can track the change in your opinion over time, and you don't fool yourself into thinking that you believed X, Y, or Z all along. Be it allows you to step away from the artificial certainty that colors, many of the discussions that we find ourselves having, right? So in my mind, I know from the fact that I actually went through the exercise of putting this on paper, that I think that there's close to a 90% chance that this was an accidental escape from a laboratory. Right now that percentage could go down. And as I've said elsewhere, I hope that it does, I am rooting for the explanation for this pandemic to be some sort of a natural encounter with a naturally occurring virus. I don't want science to be responsible for this because I am depending on science to help get us out of the terrible situation that we find in our find ourselves in and civilization and if we scientists are in some sense responsible for what has happened here, that's a huge setback. Nonetheless, I'm not going to let that affect what I think the likelihood is my second point here would be, why is it that as trained biologists, yes, we are not biologists, we are not epidemiologists, but as trained biologists looking at the vast quantity of information and analysis available to us, you and I come out so far from the established community of biologists who for all I can tell, those who are involved in being paid as virologist at top tier places, are united in their claim that this couldn't have come from the lab in either of the labs in Wuhan. And even if it's circled, even if they are correct that it didn't, I can't see where they would come out with it couldn't have,

**Heather** 25:58

right, how do you get to a zero or 100% probability? Right now

**Bret** 26:03

were you in the the lab in the primary lab in the thing iffy? v jangly lab in Wuhan, you might know a great deal more than the rest of the community. In other words, you might know that the sequence doesn't match anything that passed through your lab, and therefore it had to have come a different route. But how the rest of the community arrives, there is very unclear in light of the fact that responsibility, if this did come through, that lab will rest with them. And therefore, there's a tremendous burden for them to lie to themselves, if possible. And if not to potentially tell the world a much clearer story then make sense. So what I would suggest, in fact, I will call upon the virology community to do some soul searching, we ought to be a very easy pair to convince, if this is actually a compelling story. If we've misunderstood something, we ought to be very easy to convince, if we are not convinced scible. Because the story isn't nearly as clear as you're painting it, it is time for people to acknowledge the ambiguity. And it is necessary that you do so because I would like to point out what happens if you don't, if you don't acknowledge the ambiguity in the story, and the data continues to suggest a strong possibility of this having emerged accidentally or otherwise, from laboratories, then the entire virology community will have rest its rested its reputation on a false claim. And at this moment, we cannot afford to have the entire virology community compromised by a lie. So what I want to see is some acknowledgement that this is an ambiguous story. And for those of you who are not in the virology community, I want you to think about the following thing. I want you to recognize that every time you are told that this is not an engineered virus, and that it didn't come through a lab, you are being told implicitly that the fact that this virus shows up first, in a place that has two virology labs studying coronaviruses in bats is a coincidence, even though the bats in question do not occur in that location. So if nothing else, that is an amazing level of coincidence, and those who are telling us that this story is secure, should acknowledge it upfront, they should say, we know we find that we know that this is hard to believe. But this didn't come from a lab even though it shows up in a place where there were two labs it might have come from those labs are not widespread, and the bats otherwise do not occur in this locale. All right. You can take that diagram seems to be down. Okay. Can we segue from there I promised on Twitter, maybe unwisely to suggest an alteration in the names that we apply.

**Heather** 29:11

I actually think that talking briefly about the critiques of the pandemic video is a really excellent segue first okay there first Yep. So we talked last time, just a little bit about the the pandemic video the documentary that's maybe two hours and which has a lot of stuff in it is just clearly ridiculous. And then the 28 minute, much shorter version. That hat is mostly an interview with Judy, do you know how to pronounce it? mikovits Miko? I think it's mikovits mikovits who is a virologist who's making a lot of remarkable claims. And we basically said last time, we're probably not going as we were asked by a lot of people to basically take it apart piece by piece and give our critique and we said there's a lot wrong as a few things that seem right. And that leaves so much that we can't assess individually that we're really not sure that it's worth our time. So what I want to do rather than critique it point by point is point to Zach, if you would put up what's on my computer screen now, this is a journalistic piece that was published in Science on the two major scientific journals worldwide, called fact checking Judy mikovits, the controversial biologist attacked Anthony Fauci in a viral conspiracy video, the viral conspiracy video being I think, the 28 minute long one that is that we have seen so I want to point out this is this is this is Science, Science Magazine science, the Journal of record, where if you can get your empirical results or your theoretical results in this journal that or nature is where you want to be. And they say these this these two authors, these two science journalists, critique the her points excellently mostly so among other things, I'll just read a couple of them. She says in the video, I was held in jail with no charges, and they revealed that she's dishonestly portraying her own history, that the charges were clear and she was in jail for a couple of days. And that's not to downplay the idea of being in jail for a couple of days, but the charges were always clear. So dishonestly portraying your own history is a red flag, for sure. She says there was no vaccine currently on the schedule for any RNA virus that works. And we were asked about this in the q&a last time and we weren't sure someone said oh yeah, for sure for other species. And these guys say Yeah, actually, there are vaccines for the following RNA viruses, influenza, measles, mumps, rubella, rabies, yellow fever and Ebola. So that's kind of a long list actually. She says wearing the mask literally activates your own virus. You're getting sick from your own reactivated Coronavirus expressions and if it happens to be sorry, scoped to then you've got a big problem. So when I saw this, I thought what she mean by Coronavirus expressions, what does that even? What does that even refer to? That's not a term of art in science, as far as I know. And the authors of this piece say the same thing. There's also I've seen nothing anywhere suggesting that wearing a mask can activate viruses and make people sick the ridiculous arguments early on where that it won't do any good. And it turns out that those are mostly political arguments to keep people from stockpiling PP is when they should be reserved for healthcare workers. That's at least the most generous interpretation of what was going on. But this is the first and only time I've ever seen anyone say actually masks mask wearing itself will make you sick. And this also sounds like gobbledygook. And this is the point that you referenced last time Brett? She says, Why would you close the beach, you've got sequences in the soil in the sand, you've got healing microbes in the ocean, the saltwater that's insanity. So as regular viewers of this, these live streams will be aware. We also think the closing the beaches as a mistake, and has been from the beginning. But what mikovits means by sand or soil sequences and how they might be relevant to people being healed by being out there is is like I say gobbledygook. So you can I think you can take that down now, Zach, that all seems like these science journalists in a really compelling job of basically point by point taking, taking what she said in order and and disabusing us the readers the viewers have the sense that she has any credibility at all. But there there are a few places in the same article where they make exactly the sort of circling the wagons style arguments that you were just talking about, quote, there is no evidence this bat viruses manipulated

**Heather** 33:52

Believe it or not, come down on that side of the equation or not. There are plenty of people talking about it. There is a lot of evidence that's been produced across a lot of domains so the idea that science the premier American Journal of science, scientific communication, scientific findings can say with no apparent irony, there is no evidence this virus was manipulated and and otherwise thorough and it seems well researched takedown of megabits makes the person wonder. And there's one more of these at least. She says in the video megabit says heads of our entire department of health and human services colluded and destroyed my reputation in the Department of Justice and the FBI sat on it and kept that case under seal. And the science article responds mikovits has presented no direct evidence that HHS has colluded against her. Now I'm not saying they did I have no idea. But the idea that you need to provide direct evidence of collusion against you in order to demonstrate this collusion against you. Reminds me of that moment in the year before we left evergreen when you started talking about the culture of fear that was taken over and you will live had our colleagues coming to you saying, prove that there's a culture of fear? Tell us who's scared. Yeah. You can't. The idea that her lacking direct evidence of the collusion is evidence of lack of collusion is laughable. So what do you do with that? Almost everything in the video that the pandemic video is ridiculous, but not all of it.

**Bret** 35:22

Well, and you know, I mean, I'm glad you came around. In the end to this point about what do you do with a an article that appears to make many valid points and has fused them two points that, to my mind are effectively indefensible, right to say there's no evidence of this being an engineered virus? Well, yeah, you can set an evidentiary standard where there is no evidence, but then no evidence is conceivable. Yeah, because if you wanted to talk about what the preponderance of evidence said, in this case, it does point in that direction, and in fact, raises all kinds of questions about whether this virus even could have come from nature in the form that we saw it. So you have science here that is doing the journal Science, the journal Science, doing this job where it has taken true points and points that appear to be false, and has linked them together in such a way that first of all lay people will, you know, at best come away with a sense of I don't know what that is, but make it go away, which means that they will miss the good points. But we also have the journal Nature doing this. So the wagons have been circled amongst all of the establishment virologists and the two major journals that are, you know, as you said, the journals of record are both selling a false story that, you know, it's not that they need to come out with some sort of conclusion in the other direction, there's still ambiguity here. But what is clear is that there's a great deal of uncertainty with respect to origin. And there is an awful lot of evidence. And you know, as I said, last time, the evidence that there is something very odd about this virus, and that it emerged from a lab in one way or another is growing stronger, not weaker. So the trend over time is pointing in the other direction. All right, which does lead me to the point about the name of this virus and disease, I am increasingly troubled that a phenomenon, which is affecting almost all of seven plus billion people on this planet, either directly or indirectly, is traveling under names that function as jargon. So I will argue that there are things called terms of art, these are technical terms that you actually need in order to have a proper discussion. And then there's jargon which are terms that are artificially complicated in order to keep people who are not in the club from discussing them properly. And unfortunately, the names that we're using both COVID-19 and SARS Cove to both of these things are like something that you would label a specimen or a vial with these are not proper terms for us to be discussing these phenomena. What's more than not even accurate. In the case of SARS code two, well it turns out over time, that the medical complications arising from this virus are so perplexing and vast that to call this a Respiratory Syndrome at all is misleading. I mean, it's causing heart attacks and it's causing strokes and it's causing you know, the loss of the sense of smell and all sorts of other things. So,

**Heather** 38:47

so, let me just say that unlike the scientific names over in normal organism space, that is not viral space, which do not pretend to indicate mechanism or something that is something that accompanies the organism itself. The actual name here the scientific name is this hybrid of a description of the phylogeny the history which is the cove part, the Coronavirus part, and the SARS which is kind of an indicator of the history. But it's also an indicator of the effect that it has severe acute Respiratory Syndrome being what SARS stands for. So it's this, it's this confusing hybrid of kind of what over in non human space we would call the ecology and the deep history combined in a name, which is supposed to really only reflect the deep history, the ecology is to be discovered by other people that I'll do other times, right

**Bret** 39:39

and the 19 and COVID-19 Well technically defensible, in the sense that it started in 19, as far as we know, is out of phase with the fact that mostly it's unfolding and 20. And so, in any case, these names suck, and I'm not arguing that professionals need to stop using them if it facilitates your work. hospital or laboratory, you know, go right ahead. But for the rest of us the terms that we use to discuss whether or not we can afford to, you know, to relax the lockdown, for example, the terms should be accessible to everybody they should be, you know, English words, for example. So I'm going to suggest that a, we've been told that we mustn't reference China, or Wu Han, because that's racist somehow. And I think this is garbage. Because what we know is that the most recent common ancestor of the virus that is currently spreading across the globe and causing so much illness started in Wuhan. Now, if you look at my diagram, he's that can you put my diagram back up? If you look at my diagram, you'll see I've left I think it's a 1% chance over on the far right. For this having been an intentional release, I think the chances of this are very low. But if it was intentionally released, then it would make sense that it was intentionally released. in Wuhan in order to mislead us about its source, you would release it somewhere where there was a lab that people would come to blame. But in any case, even under that scenario, the fact is, it began to spread in Wuhan. So I'm going to argue that the proper terms for this should be the Wu Han Enigma virus, since there's much that is unknown about it. And given the amount that is medically unclear about it will Han Enigma syndrome. And I think those capture where we are, they properly allow us to describe a syndrome that seems to be just simply adding new symptoms by the day. And it does not artificially confine us to regard this as a respiratory illness or a blood illness or whatever else we might be tempted to do. And I think it leaves open the full range of possibilities for where this thing was generated, if that's what happened, and certainly where it emerged and began to spread.

**Heather** 42:08

So I'm going to push back on less, all right. It's true that we do call many diseases by the names that they were most of the places that they're most associated with Spanish Flu being the easy example. It's been discussed a lot, because it's 101 years ago, I think, is when that that pandemic happened. But the place is again, an aspect of the ecology. And in general, the names the and I think maybe what's not clear what I'm not sure you made clear, but what is clear between us that that we know about scientific names, the naming, naming of organisms in general, is that there's always some, some Latin binomial, when it's an organism that's on the tree of life, that's not a virus, some two two word name like homosapiens, or Phyllis Sylvester s, or Canis familiaris, humans, domestic cats, domestic dogs, that would that genus and specific epithet, you can actually imply them that is the entire history of the lineage all the way back in time to the origin of life on Earth. You can't do the same thing with viruses, right? Because viruses are poly phyletic means meaning that they have multiple origins. And we don't know where many of those are, or origins were. And they presumably sometimes emerged out of the tree of life that was already extent. So we can't have nearly such a clear phylogenetic name. But the cove the cove, part of the Cypress Cove to is descriptive, it stands for Coronavirus, and so I didn't I'm not prepared here as you know, I was thinking I wanted to do a whole names thing and you might go do it as a separate video. But you know, there is a nested set of viruses within viral some families and families and all that you can take out and take out into evermore inclusive sets and the cove part the Coronavirus part is a real evolutionary entity that abandoning that in this seems to me like that's a huge a huge loss. But what we don't have is a distinction between actually everyone is stuck using the scientific name because whereas when it's a warbler, I don't know if it's the birders or who that gets to decide the common name and boy bird has come up with some funky fancy common names for birds. But right now the scientists of irreligious are coming up with the with the scientific names and the politicians are jostling for the common name and you're proposing a new common name but it sounds to me like it's just as you've murky and messy and as as all the rest but it doesn't have is an acronym that many people wouldn't know what it meant.

**Bret** 44:59

But to the stuff that you're defending COVID right? Cool.

**Heather** 45:03

I was I was defending SARS COVID to COVID-19 being the disease, right is this? I think it's actually more pronounceable. So but I was I was not defending the name of the disease so much in part because I know almost nothing about how diseases tend to be named that the name of an organism is something in which you and I both have substantial background, and we understand not only what happens, but why it tends to happen. And I think I have a fairly a fairly good grasp of sort of where the bodies are buried and what makes sense. Whereas how diseases come to be named. I know, I know, far less and it seems to me that it is inherently political. I

**Bret** 45:39

think this one was named by the who, which is another reason to dislike it. That the amount of misinformation and false starts out of the who does not suggest that their naming convention is one that we ought to inscribe into history. But so SARS Cove to you think SARS is still an appropriate way to refer to this.

**Heather** 46:07

Well, I think, again, I'm not I'm not prepared for this the way I have been in previous livestream so we didn't get to it but if memory serves SARS, which appears to be this ecological description, severe acute respiratory syndrome, which describes what people who get this get infected with this virus experience has become an indicator of the place in the phylogeny. And I'm not saying that's wise, but it's a little bit like chiroptera right? So chiroptera means pan Wang, it's the it's the Latin name for the group of mammals that everyone else knows is bats, but I use it because you're, you've been a biologist at some point in the past, right? So hand wing, describes a piece of, you know, the the anatomy that allows for the ecology that is really totally descriptive of bats. That's okay, even though bats could or you know, tetrapods the four legged animals that emerge on the land are still tetrapods even when they're snakes that's not really accurate anymore snakes don't have four legs but they're still part of that history so if I'm right I'm not sure I'm right that SARS in this case is describing a particular piece of the the history of the phylogenetics then it does belong there even though it is a miss a bad description of what it causes in people

**Bret** 47:22

All right, I don't know how many other people are going to care about this but I've got your right where I want because now you're telling me that SARS even though the last essence SARS stands for syndrome, yeah, that that is an appropriate phylogenetic. delineator, and it can't. The whole point of a syndrome is that a syndrome allows us to describe the symptoms of a disease without knowing its cause. So back before HIV was understood, we knew about AIDS, AIDS was a syndrome Acquired Immunodeficiency Syndrome. And the point is here is a set of symptoms, and we know you're sick with something, but we don't know what it is, later on. The discovery of HIV tells us okay, it's this particular particle acting in this particular way. And that particular particle is related to other particles that we can go find in nature. So I think SARS is just a bad descriptor that came from the early understanding of the symptomatology here. And what we're learning is that any sort of bias is, is a hazard here, because for one thing, we're learning so much about how you can't afford to treat this normally, because it may be that, for example, ventilator is dangerous to you, if you have a sufficiently strong cytokine storm. So anyway, I don't know how far to push it. But I would say there's a lot that is mysterious here. The nature of the virus is mysterious, the nature of the syndrome that follows is mysterious, we're learning a tremendous amount, and naming it in anything other than English seems to me unfair to the large number of people who are simply having to tolerate our scientific discussions of their fate. And, you know, if I were one of them, I would want in on those discussions, and I would want it described in English. And you and I would agree, the worst possible thing to happen is to allow the people who are politicizing the issue to do the naming. So I'm proposing these two if you think there are better ones, I'm I'm all yours. Okay, where are we? timewise 15 minutes 15 minutes.

**Heather** 49:39

There's one set of things I want to do. I know you've got a lot more that you could, you could go after Nope, go ahead. Okay, well, this this is in the sort of corrections addendums file. So this is a break from what we've been talking about. There's no natural segue here.

**Bret** 49:52

I have a correction if you don't get to it, but we'll see if it's on your list. Okay, well,

**Heather** 49:55

this is I just have the one really I integrated one or two Already into. We didn't say that there weren't any vaccines for RNA viruses, but we weren't sure. And I listed a bunch that were revealed in the science article. And then there's a question last time in the q&a for live stream 13, about a report out in the military times that the DOJ had apparently restricted Coronavirus survivors from enlisting, and we didn't know about it at the time. And we even thought, oh, Military Times don't know if that's a legit site. Turns out it is a legit site. And the story is interesting, and it continues to evolve. So you might show this screen just briefly, Zach, this is not the story that was alluded to in that question, but a follow up story, actually. So originally, the Pentagon had said, actually, we're not going to let anyone any survivors have wait for it COVID-19 to enlist in the US Armed Services at all full stop. And there was pushback, considerable pushback in the Pentagon then said, as reported in this slightly later Military Times article, that it's narrowing its band only prohibiting those who've been hospitalized for the disease. And then there's a more even a more recent story now, excuse me, that suggests that there's at least one Republican lawmaker who is pushing back against that ban entirely. So anyway, that's that's all very interesting. And response to the question in real time in the last live stream, I had this pretty naive response, actually, I said, why would they restrict survivors from enlisting? And I really, given how much we've heard over the years about how how much difficulty in the US military has had time has had getting conscripts? Like why why are they making it harder now. But our friend Holly, who's at polymath nerd on Twitter, pointed out that this would seem to indicate that there are long term consequences to the disease that we may not fully understand yet. But maybe the military is either banking on the fact that they are real, or they know more than the rest of us do about those long term health care concerns. And that is actually now that she says it now, once she said it to me, I thought, Oh, of course, of course, that would be the reason to restrict people who had been in this now they've, they've changed it to very sick from this disease from enlisting in the future. Maybe they don't want to pay for the health care costs of their ongoing care if it causes long term damage, like we have said repeatedly on this, it likely does when it seems like you want to add something here.

**Bret** 52:29

Well, I mean, a I would point out that this isn't permanent, they can certainly discover that they've been too cautious and they can relax this rule later. I don't think it's a bad rule in light of what we don't know here. I mean, for one thing, we don't know whether or not, you know, there's no evidence for but it could come back for people who have had it, it could recur. And if that happens inside of a military unit under, you know, we're housing together somewhere, that could be a major vulnerability. Absolutely. You know, worse if this was a bio weapon, as you may have seen on my chart, I think the chances of that are very low. It's possible that it escaped from bio weapon research. But But in any case, the the risk in a military context is significant enough, the rule isn't permanent. So I don't see any particular reason to complain about it. I did want to say I think it was my error. I said I wasn't sure about the Military Times and then I did check into it my phone the same thing you did. It's a perfectly legitimate journalistic site. And so anyway, my apologies.

**Heather** 53:42

Let me just say before you get to your correction, no, that was it. Oh, right there, okay. That this the same Holly friend of ours, I want to give a shout out to her other Twitter account, which is great women in mathematics, it's at GW l maths. And it's it's really quite a wonderful site in which she features women for mathematical history and their contributions. And right now she's doing a she's got a thread and a competition actually, on the 200th anniversary of the birth, I guess, of Florence Nightingale, who was a founder, which I didn't know of descriptive statistics. Yeah, I had no idea and as the thread says, I'll just quote from one of the tweets here. She made statistics accessible to wide audiences by furthering mathematically sound methods of data visualization and presentation and made them beautiful too. So who know amazing if you if you're interested at all in math and and the history of it and how it has changed through time. This is a really fabulous site. Great women of mathematics

**Bret** 54:48

is a great follow on Twitter. Totally worth it. And you will join I don't know as JK Rowling. That's right. Yeah, tweeted about her thread. So anyway, Very, very good choice on Twitter. All right. So I think that covers everything that I was looking to do here, we should take a 15 minute break. And then we can return to do

**Heather** 55:14

come back and maybe we'll start with those two Twitter questions Brett that you pulled and then address as many of the Superjet questions from this first live stream as we can in a limited amount of time and then start addressing those that come in during the second live stream.

**Bret** 55:29

All right, excellent. We will see you shortly.