

## **There is No Free Will**

What Happens Next - 10.15.2022

Larry Bernstein:

Welcome to What Happens Next. My name is Larry Bernstein.

What Happens Next is a podcast which covers economics, finance, history, science and politics. Today's session will be on No Free Will.

Our speaker will be Robert Sapolsky who is a Professor of Biology and Neurology at Stanford as well as the author of numerous books including *Why Zebras Don't Get Ulcers* and *Behave*. Robert believes that you do not have any free will. That instead your behavior is dictated by a complex combination of factors that include genes, environment, hormones, glucose levels, and epigenetic events. It is complicated, but Robert will argue that there is no little man in your head making the decisions.

Buckle up.

I make this podcast to learn and I offer this program free of charge to anyone that is interested. Please tell your friends about it and have them sign-up to receive our weekly emails about upcoming shows. If you enjoy today's podcast, please subscribe so that you can continue to enjoy this content.

Today's podcast was recorded at Stanford in conjunction with an event to honor my old boss and close friend Myron Scholes, the Nobel Prize winner in Economics.

Ok, let's start today's session with Robert Sapolsky.

Robert Sapolsky:

I published a few years ago a book called *Behave: The Biology of Humans that Our Best and Worst*.

Like every other animal out there, we are aggressive; we are using the same exact circuitry in our brains. We're secreting the same hormones as any other primate. When we're empathic, when we're responding to somebody else in pain, we're using the same parts of the brain as when you see that in other species, whoa, we're just like them and whoa, we're completely different from them because we can do stuff that no chimpanzee on earth could ever do. We can feel the pain of somebody on the other side of the planet whose face we never see. We can watch somebody on a movie screen and feel badly for them, and there are a bunch of pixels. We can press a button and kill somebody on the other side of the planet with a drone.

We are, without question, the most miserably violent species on this planet. Chimps have the rudiments of organized warfare. We leave them in the dust. We are the most violent species, we're awful, we're miserable. And at the same time, we're also the most altruistic species and the most cooperative and the most compassionate.

How we can be both so awful and so wonderful and how so often the exact same behavior has such different meanings in different contexts. In one setting, you pull a trigger, and it is a horrific, violent, heartless act. In another setting, you do the same exact thing with your muscles and your motor cortex, and you pull a trigger. And by suicidally drawing fire on yourself, you save the lives of a whole bunch of innocent people. The behavior is absolutely the same, the context, a universe apart.

Why did that person just do that? Because one second ago, this part of the brain activated, that part of the brain went silent.

Why did those neurons do that just now? What happened in the previous seconds to minute? What sensory stimuli in the environment triggered those neurons to do that? What smells? What sounds what internal signals? And in the previous hours, days, what did hormone levels have to do with it? What your testosterone levels were like this morning? What did they have to do with how sensitive your brain would be to those sensory stimuli?

And from there, you're off and running, what has the previous months been like? Have they been wonderfully stimulating? Have they been boring? Have they been traumatic? Because this whole field of neuroplasticity, the very structure of your brain will reflect with the last half year has been like, and thus the sensitivity to hormones and sensory stimuli and all of that.

And then you're back to fetal life. Environment does not begin at birth. Trauma dramatically begins the second you are an implanted fertilized egg because your mother's environment, what's in her bloodstream? Is she stressed? Is she frightened? Is she using a substance that's abusive? Is she healthy?

And then back to before you were fertilized. What do your genes have to do with it? Yep, all of these have to do with it. What kind of culture did your ancestors generate 500 years ago? And if you're asking about different types of cultures, you're asking about different types of ecosystems that make for different types of cultures. And then you're ultimately asking about evolution. Why is it that we are so much more cooperative than chimps are, but so much less cooperative than Bonobos are? Why is it that we're so much more pair bonding and monogamous than bonobos are, but we're less monogamous than South American primates are.

Because of what happened a second ago and a minute ago and an hour ago and a century ago, and all of that to place it in a larger context, why did that behavior occur? Because of what just occurred before this and what just occurred before that?

Now let me give you a sense of what some of these influences look like and why it is that this led me to realize ultimately what this book is about is why we have absolutely, not a shred whatsoever of free will. And let me just give you some examples. And they're not meant to convince you of any of that if you find that to be ludicrous. To give you a sense of where these totally nutty biological influences on behavior are coming from. Okay? So, you are a judge.

I'm not specifying what country, what legal system, what type of judgment, who you're judging. But you're in a situation where you must make a judgment about something about the person in

front of you who has done something violent, who you now have to decide are they going to do something like that again? Have they learned their lesson? Have they showed remorse? Can you free them now on parole? Do you send that back to jail longer? What things are going into your decision? And we all know what's going into it. It was freshman philosophy classes and which law school you went to and all sorts of stuff. Let me tell you a little bit about some of the other factors that will significantly influence what kind of decision that judge will make. First one, most acutely this has been studied, published in a prestigious journal some years ago, has been replicated. What's the single best predictor of whether this judge will send this person back to jail or parole them? How many hours it has been since that judge has eaten a meal.

Immediately after lunch, people had a 60% chance of getting parole, by three hours later, 0% chance. Same thing in the morning, top of the morning 60% chance, zero just before lunch. What that's about is biology. Your brain is expensive. And when your blood glucose levels are low, your brain doesn't work as well. And when levels are low, the most expensive, most important, part of your brain, your frontal cortex is particularly bad at working. What does the frontal cortex do? It makes you control your impulses, to send this person back for another 10 years, to regulate your emotions, to do the hardest thing out there in some circumstances, to try to see the world from somebody else's perspective, to try to understand somebody whose entire lifetime has been utterly different from yours.

And as the minutes tick by, and the blood glucose levels go down, the judges take a shorter time to make a decision and they're less likely to grant parole. This is about energy. You do an experiment. Mid-afternoon you have them drink a sugary drink or one that tastes sugary and is filled with an artificial sugar that doesn't boost up your energy levels. And one group suddenly shows more compassion. One group suddenly is more likely to cooperate in an economic game, less likely to cheat. Oh my god, this is amazing. And you sit those judges down and you say, "Whoa, that's really interesting. A couple of hours ago you let that guy go free, but just now you sent this guy back and they seem to have done the same thing."

You look at loan officers in a bank and the number of hours it's been since they've eaten a meal, the less likely they are to grant a loan. You look at people looking at CVs, deciding who to interview, and if it's the CV of somebody from an out-group, whatever your culture's equivalent is of an out-group, the wrong race, the wrong religion, the wrong whatever, as the hours go by, you spend less and less time looking at their CV, until it's lunch. And then you come back, and you are a humanitarian like you cannot believe for about 45 minutes afterward.

Why did that person just do that? Because of their blood glucose levels. So, you've looked at this judge just now who in some cases decides this person is terrifying, and I'm not letting them out on the streets, and in other cases, decide this person's paid their price to society. What we've just seen is maybe differences in the thresholds of the brain as to what counts as menacing.

Where'd that come from? And here's one of the significant factors, prenatal environment. Back when you were a fetus, if your mother was very stressed, stressed by socioeconomic stressors, stressed by refugee status, stressed by who knows what, she secreted a lot of stress hormones which got past the placenta, which got in your circulation, which got into your brain, and among

other things, caused permanent changes in gene regulation. The incredibly trendy term for it is an epigenetic change.

And a part of your brain called the amygdala. What's the amygdala about? Fear, anxiety, aggression driven by fear. And what is now identified is exactly which genes are turned on permanently and which ones are turned off. And as a result, if you were in the womb of a stressed woman, your amygdala on the average in adulthood is gonna be bigger than most other people's and more reactive to provocation and have a harder time turning off when it's over with and have a harder time telling the difference between a neutral stimulus and a threatening one. Wow. Why did you decide, this person who looks, prays, eats, loves differently from you is more of a menace than that other person is? Part of it is how your brain was being constructed when you were a fetus. How your brain was being planned for, is how threatening you find the world to be.

Final example. So, we've got this judge making this decision, and so are they going to grant parole to this out-group member versus this in-group member? Are they going to grant clemency? Are they going to give asylum to these out group people fleeing, try to come into your country. Here's another significant predictor. What culture do you come from? What culture were you raised in 500 years ago? How much of an infectious disease load did your ancestors have? Because if they were dealing with a lot of infectious diseases, they didn't like outsiders, they didn't like people coming in and bringing in diseases. And for the last 500 years, they constructed a culture of xenophobia. One of the predictors across the world of how open people are to strangers is the infectious disease load of their ancestors five centuries ago.

What is going on here? This is the biology rumbling underneath the surface. Why did you do what you just did? It's got something to do with the culture you were raised in and your ancestors. It's got something to do with your blood glucose levels. It's got something to do with what your brain was being pickled in when you were a fetus. We're biological organisms, and we are nothing more or less than the sum of our biology and the environment with which it interacted that we've had no control over.

Free will is complete nonsense. There simply is no such thing as free will. We are being controlled by subterranean forces. When you look at our explanations for why we do what we do, they are post hoc. You ask somebody in a brain scanner to make a moral decision about something. And what you could see is the emotional parts of the brain make the decision seconds before the more cognitive parts. The cognitive parts are playing catch up to justify the emotional responses. You have all these sorts of studies showing that. So. my theme since then and a book that I am finishing, which is about how in God's name are we supposed to function, if we accept that there is no free will? How is society supposed to work? How are we supposed to do things so that the roof doesn't collapse in? And what most of the book is about is just clawing my way towards a very, very dismal science. And I don't mean economics. Does science tell us anything about how we're supposed to function? Once people accept that there's no free will, or at the very least that there's so much less free will, that you better rethink the way you make judgments about everything out there?

And the book has two themes. One is throughout history; we have managed to subtract blame out of how we assess some of the troubling things in the world around us. And not only has the roof not collapsed, but we've also made the world a more humane place, so we can do it.

But the other point is some serial murderer is not responsible for what they did. It's going to be a million times harder to convince you that you are not responsible for your amazing resume and your good table matters and anything else that you've ever been praised for.

It's going to be hard to realize this stuff applies to some of the most frightening humans out there, but I'm convinced by now it's going to be much harder to convince us it applies to some of our best traits. So that's kind of what the book was about. And this is what the next book is going to be about. The title is *Determined: A Science of Life Without Free Will*.

Larry Bernstein:

When we ask our spouse to make a big decision, we make sure not to ask the question if they are either very hungry or have had a poor night sleep.

That said, I think that when I ask a friend, relative, or colleague a question, I get an answer that is pretty much expected. I know the individual well enough that the response is predictable and not a crapshoot. And it doesn't seem to be random and determined based on a cultural phenomenon from 500 years ago.

Robert Saplosky:

Our free will is found in quantum indeterminacy. There's a whole school that insists that's the roots of our free will that's an explanation for like why our behavior would be utterly random. And as you bring up, what's important is our consistency. Why is it that in the best of settings and the worst of settings, some people are always themselves. And at a funeral when you're having eulogies, the person's best friend from childhood saying even then they were just like this, this consistency, which is some degree of predictability.

We know Mother Teresa is very unlikely to have ever mugged somebody. There are certain consistent things, but what the biology is orthogonal to that. Let me give you an example. So, somebody, they've got a very important day tomorrow, and they're tired, and they want to kick back and watch a movie on Netflix, but they have to prepare for tomorrow. Are they going to be able to do the self-discipline needed tonight? And that's going to have something to do with what their frontal cortex was like, and their infancy, and their adolescence, and what they had for breakfast. That tells us absolutely nothing.

If the good job tomorrow is helping a whole bunch of desperate refugees get settled, or if the good job tomorrow is going to consist of being efficient at ethnically cleansing a village. Oh, what counts as a good thing, or a bad thing is very culture specific. Culture, where culture comes from, how their mothers raised them, what myths they were taught as a child, whether they were taught that the afterlife is something you get into by good acts or by dying in battle against the enemy. All of this is helping to explain what some of the commonalities are, what your temperament is like, what your personality is like, what your capacity for impulse control.

And why don't we have free will? It's not because of neurobiology and endocrinology and genetics and cultural anthropology. It's because they're all the same thing. If you're talking about evolution, you're talking about genes. If you're talking about genes, you're talking about the proteins they code for. If you're talking about that, you're talking about how those proteins help construct your brain. If you are talking about fetal life, you're talking about what your hormone glands are going to be like as an adult. They're all the same discipline. They are all a continuous flow of influences. And when you look close enough, there's not a damn crack in there in which you can shoehorn in some free will.

Larry Bernstein:

After hearing your example about the problems in the sentencing process for judges, I've invited Federal District Court Judge Gary Feinerman to ask a question.

Judge Gary Feinerman:

I'm a federal district judge.

Robert Sapolsky:

No, no offense intended.

Judge Gary Feinerman:

None, none taken. And you're outside of my jurisdiction, so I can't hold you in contempt.

Robert Sapolsky:

<laugh>.

Gary Feinerman:

Criminal docket is about 20% of my docket, but I end up sentencing about two dozen people per year. And the factors that you discussed when you first started talking about sentencing, the nature and circumstances of the crime, the history and characteristics of the defendant, considerations of general deterrence, considerations of whether this person's going to do it again, cross defendant equity. Those are things that I'm directed by the statute to talk about when I justify the sentence. In terms of my amygdala, I can't do anything about that. I can't do anything about the disease load 500 years ago.

We all have priors; we all have implicit biases, and we all engage in fast thinking in the Kahneman sense. What I do, and I think what all my colleagues do, is to not pretend that doesn't exist, but to recognize it, own it, and do what we can to the best of our ability to put it to the side. In terms of having a meal, I have a box of Cliff Bars in my desk. I read that study about the Israeli judges with the parole, and I have a Cliff Bar before every sentencing because it <laugh> I do, because if I'm going to launch somebody, I don't want it to be because I'm angry. I want it to be because they deserve it. But it seems like what you were saying, and maybe I misunderstood you, is that I have no free will. So, all the sentences that I give, all the sentences that I give are predetermined and that's just not my lived experience. I know that we don't have perfect self-knowledge. So maybe I don't know myself as much as I think that I do, but more than half the time I go into the sentencing hearing, I read the materials, I go in and I think, okay, the sentence is going to be X. And after I hear from the prosecutor and the defense attorney, and the

defendant, and the defendant's family, and the priest, or the rabbi, or the minister, and the kids and the victims, the sentence ends up at the end of three hours being something different than X. So that tells me that it's not all pre-wired and predetermined. I'm wondering what your reaction to that is.

Robert Sapolsky:

First off, I'm very glad to hear how reflective you are, and I hope I wind up in front of you, <laugh> instead of some other judge when the inevitable day comes. But what I would say is the scenario you just described is even more emphatically showing that we have no free will. So, you come in, and you could frame your free will in a way that is very legalese, which is that you came in with a certain intent. And a lot of the time, what courtrooms are trying to find out is what the defendant's intent was. But now we know what your intent was. And as a result of stuff, you heard throughout the day, you formed a different intent. You chose to have a different outcome than you were anticipating. And thus, a very simple question is, would every single human on earth in your situation have done the same thing?

Why is it that you are more reflective than most people? Why is it that you're more willing to change your mind? Why is it that your sense of ego is such, and your experiences in life are such, that you don't feel like you have to dig in your heels, or you have a reputation, or they're going to be pissed off at you and you feel when I go home at night, I feel loved. I don't need to feel loved in a courtroom.

I could change my opinion. Where did those come from? From your upbringing, from your values, from all of those things were inculcated in you, unless every single person on earth would've sat down with the same intent that you had and finished the day with the same different intent like you had, where you got that from.

It's the simple question, where did that intent come from? Because part of your intent was, I'm going to listen really seriously, and I'm gonna try to listen to that person's perspective, each and every one of them. 99% of people can do that for about three and a half seconds before they do something impulsive, that didn't happen by chance in you. And there's genes that have something to do with that. And there's prenatal environment that had something to do with it. And the fact that you were raised as a westernized American rather than say as a Bedouin judge had something to do with it. And all these factors, if anything, that was exactly a demonstration because at the end of it, you have to ask, where did that intent come from? Where did the intent come from to think hard enough to maybe see things differently? Where did the intent come from that if those thoughts take me in a different direction, I'm willing to emotionally accept that is happening. All that does is show the same exact thing.

Enrique Bargioni:

If you could offer your thoughts on the role of biology on the subconscious.

Robert Sapolsky:

This is a minefield. I'm absolutely terrified by the whole notion of having to think about the neurobiology of consciousness or unconsciousness because it is so confusing. Once every five years I force myself to read a review on the subject and see that nobody's gotten any further with

it. So, I can like exhale for five years. But I think what this is showing is that's what we're running on 90% of the time.

This is one of my all-time favorite studies. You sit a volunteer down in a room and they fill out a questionnaire about their political views, about social-political questions, about economic questions, about geopolitics, whatever. This is what this person thinks.

And if instead they have been sat down in a room that smelled of rotten feted horrible garbage, they become more socially conservative in their answers. What in God's name is that? And if instead people sit down and they sit in a room that smells of freshly baked chocolate chip cookies, they become more generous in the economic game.

What's bubbling underneath the surface, your response to stimuli. Your brain responds to that smell in that room. A distinctive smell of some ethnic food that makes you think of your grandmother, or if it makes you think of wanting to commit a holocaust, your brain is going to respond very differently to a subconscious smell in the room.

So yes, a huge percentage of what's going on is unconscious. And what we're often doing afterward is trying to come up with an explanation. Anytime you see someone who sits there and says, "I can't tell you why, but when they do that, it's wrong." If somebody is saying I can't put my finger on it, it means their emotional limbic part of the brain made the decision a long time ago, and the conscious declarative cortical stuff in their brain hasn't come up with a post hoc rationalization yet. You're not looking at rationality, you're looking at post hoc rationalization and that's what's going on.

Here's another version of that. Take five-year-olds and look at how much novelty makes them anxious. Put them in a room without their parent and there's a toy to play with, and do they freak out, or do they go and explore? And what happens to their heart rate and what happens to their stress hormone levels? And you can characterize this is temperament responsible, say, come back 25 years later. And the kids who was five-year-olds who were more disturbed, were more stressed by ambiguity and novelty are more likely to be socially conservative, because starting at age five already, new stuff was scary instead of exciting, 25-year break at that, and that's already a significant predictor. The bits and pieces of what makes us who we are rumbling underneath the surface. And those bits and pieces fell into place anywhere from this morning at breakfast to a million years ago.

Larry Bernstein:

Our next question comes from Stanford Finance Professor John Burke:

John Burke:

I'm very sympathetic to the arguments. There's a lot of other research out there underplays the role of genes. If a pregnant mother's taking drugs, it's probably because her genes predispose it. And those genes are still in there. So, it's an argument for the enormously important role of genes. That said, as an economist, we think on the margin, in any making any decision, we're we are always thinking what does it do on the margin to somebody? Similarly, we're trained to think

of incentives. So going back to I think which is the essence of the discussion, which is the free will part of the discussion.

So really the question should be to what extent can you change behavior. Just as you said, if I give somebody a lunch, I will change behavior. So just because the genes are deciding how people behave does not mean you can't change behavior. So, isn't the real question to be what extent can we change behavior and change society for whatever goal we have in mind?

Robert Sapolsky:

Okay, that's a fantastic question. I'm breaking into two parts. The first one is, okay, so what's the deal with genes? And even though colleagues of mine would stab me for saying this, genes are stupid and boring. Genes like we're in the genomic era. Everything is explained by genes, and nothing is explained by genes. Genes are the holy grail, the code of codes because we spent more money than we did on the entire health budget the other year, sequencing the human genome. Genes determine everything. Genes determine nothing. Saying that a gene determines something is like saying that the recipe in a cookbook determines when you make the cake. Genes are in the ingredient list in the instruction manual.

What regulates the genes? What decides when they're turned on and off? Environment. Let me give you an example of that which totally brings in these issues. Okay? So, there's this gene called monoamine oxidase B, and it codes for an enzyme that's got something to do with the neurotransmitter in your brain, the serotonin. The gene comes in two different flavors. And a whole bunch of animal studies suggested that if you got this flavor, you were more prone towards aggression and violence. Whoa, that's really scary. Is it the same in us? And people believed it was same in us to the extent that it was now termed the warrior gene. And it was used as a mitigating circumstance in at least one sentencing phase for a violent crime in the UK.

People go and they study this gene. They went and looked at 17,000 people in New Zealand, followed them from childhood with genetic information, following them into adulthood, do they have a history of antisocial criminality, all of that. Does it have something to do with which version of the gene they had? And the critical question was, so if you had the scary bad version, were you more likely to have a history of anti-social violence? And the answer was yes. Yes, absolutely. Only under one circumstance, so long as you were abused as a child, the more childhood abuse, the more that gene version synergized and increasing the risk of aggression. In the absence of childhood abuse, that version of the gene had absolutely no effect as compared to the other version.

John Burke:

But it could be, it could be that the propensity to abuse your child is driven by a different gene.

Robert Sapolsky:

Yes, yes. Thank God for one of the most complicated subjects to draw anything from, but like adoption studies and twin studies and things of that sort, which will show things like how much of it is due to the home environment versus how much is due to the biological legacy. And what you see in these cases is that like, don't ask what a gene does, ask what a gene does in a particular environment. And it's the exact same way with any gene out there that has anything

interesting to do with behavior. It works different ways in different environments. So that teaches us something and the abstract, but like most organisms live in a single environment.

But you find us in the Amazon and in tundra and in desert and in socialist societies and in capitalist ones and monogamous cultures and polygamous ones. There is no species out there that is more subject to what environment has to do with what your genes do, than us. Which is another way of saying there's no species out there that is more freed of genetic determinism than we are.

So that brings us to the second issue. So, everything's determined biologically and biology interacting with environment, everything is predetermined, nothing could ever change. Why should we ever bother? And we know that can't be true because people change dramatically. People who were combatants against each other reconcile in old age. Vietnam War veterans travel to Vietnam for reconciliation ceremonies. Entire cultures change. In 1800, the scariest crazy ass people in all of Europe with the Swedes, they spent a whole century rampaging and making Peter the Great miserable.

And somewhere around 1815, something happened. And the Swedes became the Swedes. And since then, all they do is roll around in the snow naked and then go into saunas. And they haven't had a war since 1850. Cultures change; it's possible for things to change. How does this happen? Let me give you an example with the judicial gentleman who was at the table a little while ago has taken in all of this, and as a result, on a very literal level, something in his brain has changed. I belch very loudly right now, and something in your brain will change. There are some receptors that the gene will make more of them or less of them. There will absolutely be a change in your brain. And if it's the right trigger, and the right sort of brain from now on, you're going to be bringing Cliff Bars into the courtroom.

Or at the very least, you're going to think twice about, hey, am I just being cranky and unsympathetic at this? And what happened is, your behavior will have been changed by the circumstances of the last hour or so. And if instead you hear on the news that something horrendous and awful has happened, and a part of your brain that has something to do with how much of a sense of efficacy you have in the world, it's going to be weakened, and you're going to feel helpless, and the world is going to be a much more disturbing. And there's a neurobiology to that. And thus, at some juncture, an hour from now or a year from now, you're less likely to do this and you're more likely to do that.

I found a great example of this one time I was driving down I-280 trying to get to campus, and I was late, and some car passed me, it was some electric car and they had one of those bumper stickers that said do random acts of kindness.

And I looked at and I said, that's nice, that's nice. Good for them. I bet I would like the person. I bet they belong to NPR. Wouldn't it be ironic if they're on their way to robbing a bank right now? And 30 seconds later, some son of a bitch monster tries to merge in the lane in front of me. And my first thought is, "Oh no, you don't. I'm important, I got to get to this meeting." Then for three eighths of a second on that bumper sticker and I said, "Ahh, I'm like an incredible soul. And I

take my foot off of the gas and put it on the brake and slow down a little bit, let the person come in.”

And I feel so incredibly noble about myself afterward, and farewell fellow men and all of that. And if only we could all hold hands and let each other merge into lanes. And there is a neurobiology that explains the 30 seconds between seeing that guy's bumper sticker and saying, “slow down a little bit.” And there's a neurobiology to how you were raised and who you're willing to kill for and die for. And all of these things can change in response to subsequent experience. If anything, the oh my God, we're just biological organisms, there's no free will. Rather than that being grounds for pessimism, all that does is underline further, our capacity to change, because we understand every single bit and piece of how that occurs and it's all mechanistic.

Colin Teichholtz:

At some point, are we going to look at this as a society and say we can't hold people responsible at all because nobody has any free will. And if that's the case, how will society function once we come to that conclusion?

Robert Sapolsky:

Well, that's exactly what's consumed my last five years. How are we supposed to function? How are we supposed to deal with the fact that nobody is ultimately responsible for their actions? How are we supposed to deal with that when it makes us hate someone?

It seems inconceivable. I'm intellectually totally accepting that we have no free will, and I can function that way for about two minutes at a time. A couple years ago, some guy had done some horrible appalling act with an assault rifle, and I listened to NPR and they're saying today in federal courts if he's charged with Federal hate crimes, he's also eligible for the death penalty. And I said, “Yeah, fry the bastard.” And then two seconds later I said, “What are you talking about? You're working on a death penalty case.”

The reality is words like deserve, earned reward, praise, blame, punishment, any of these are as irrelevant as saying exorcisms and demonic possession. 500 years ago, the leading most like learned careful minds out there, and explaining what we would now call an epileptic seizure would say it's demonic possession. And the treatment was very clear, burn 'em at the stake. And it's merely taken 500 years for people to figure out, no, it's a neurological disorder and it has nothing to do with who the essence is of that person. It's just this weird electrical hiccups that happen now and then and that only took us about 500 years, and it's only taken us about 50 years to learn that the Freudians were full of it. And the mothers of schizophrenic do not cause schizophrenia because they unconsciously hated their child. And it's only taken us about 20 years to learn that some kids are bad at learning to read, not because they're lazy and unmotivated, but they've got screwy stuff in one layer of their cortex.

And that's why they have dyslexia. And in the last 10 years or so, most of like white bread America learned that it's possible to love somebody else of the same sex enough that you want to marry them. And you know what? That's okay.

Let me state something that would fail that category for me. A mindset of seeing someone who would do something unspeakable to a loved one of mine as nothing more or less than a car whose brakes are broken. I can't imagine that. But people just as reflective, 500 years ago would've found it ludicrous. The notion that people could suddenly foam with the mouth and fall down and babble and rise and that it's anything other than a sign of Satan. We've done it over and over and over again and we can keep doing it. And that's exactly the challenge we've got.

Larry Bernstein:

Thanks to Robert Sapolsky for joining us today.

If you missed last week's session, check it out. Our speaker was Stanford Economist Nicholas Bloom who discussed the greater tendency to work from home. Nick concluded that 30% of work hours are now done at home. It reached 60% at the height of COVID but for the last four months has been steady at 30%. Nick will give us his take on whether, we will return to the office as firms may adjust compensation to encourage it.

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I would like to thank our audience for your continued engagement with these important issues, good-bye.