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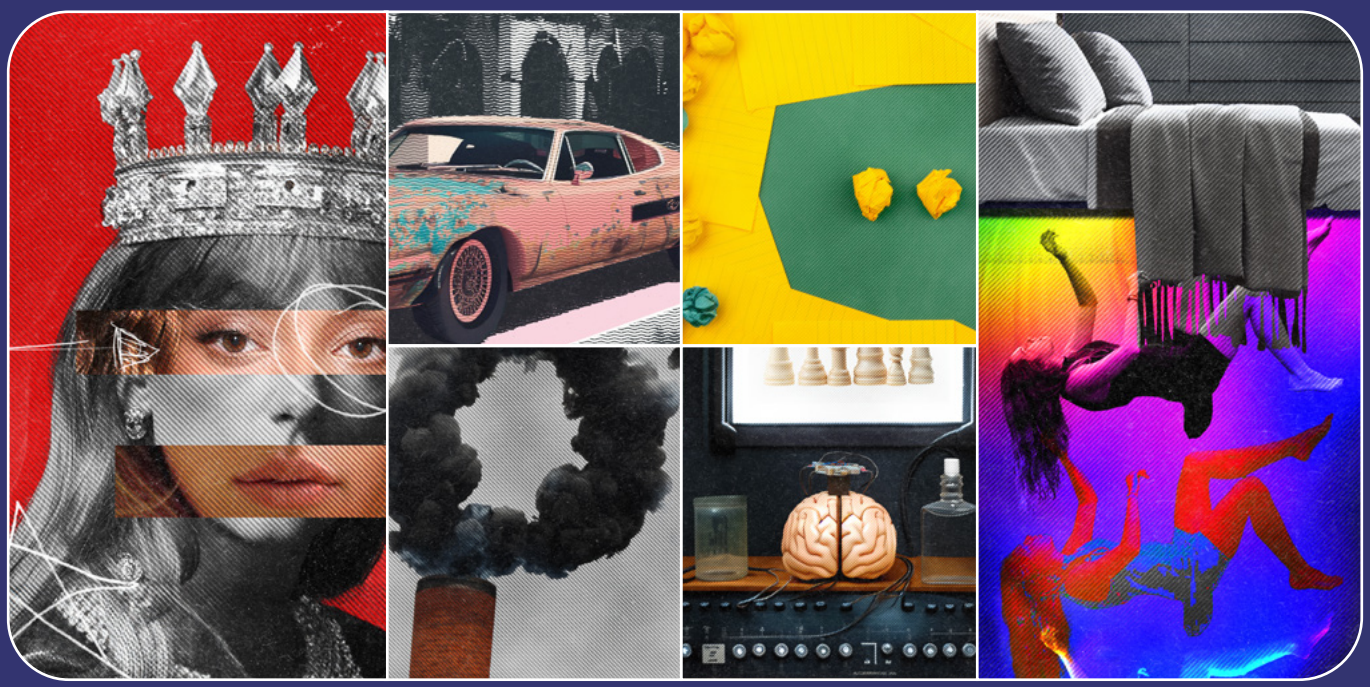
THE PODCAST READER

WISDOM AND INSIGHTS FROM OUTSTANDING LONGFORM PODCASTS



ISSUE 12

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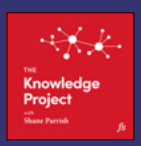

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THE PODCAST READER

Welcome to Issue Twelve of *The Podcast Reader*, a more permanent platform for outstanding longform podcasts. In this issue we cover three broad categories of content:

How to improve yourself:
Morgan Housel on the art of spending money
Gina Poe on the science of better sleep

How to improve society:
Holly Buck on issues with net zero carbon emissions
Lydia Dugdale on the lost art of dying
Eric Monnet on monetary policy without interest rates

Frontiers of knowledge:
Seth Godin on marketing, art, and meaning
Patrick House and Itzhak Fried on the brain's mysteries
Daniel Kahneman on judgement, biases and intellectual honesty

This will be the final issue of *The Podcast Reader* from the current team. Thank you to our readers and subscribers for your encouragement and support. And thank you to the podcast channels who have so generously agreed to share their fascinating work with our audience.

Future issues of the magazine will be digital / PDF only, and will be curated by the lovely people at Fanfare (www.withfanfare.com). The Fanfare team share our mission of delivering high-quality podcast transcripts in a format conducive to deep thinking. Going digital-only will allow the magazine to be distributed free of charge, and broaden the number of topics covered.

Current readers and subscribers of *The Podcast Reader* will need to sign-up at withfanfare.com/podread and are invited to submit suggestions for future content for the magazine.

The Publisher wishes to thank our core team of Vaughan Mossop (design and illustration), Andrea O'Connor (editing) and Laura Sullivan (web and distribution) for their creative, helpful and efficient work over the past three years. Thanks also to Nicholas Gruen, Joseph Walker, Morry Schwartz, Michael Skarbek, Yann Burden, Peter Moran and Mo Wyse for their wise counsel and encouragement.

Don't hesitate to sign up at withfanfare.com/podread to receive future free issues of *The (New!) Podcast Reader.*

The Podcast Reader acknowledges the Kulin Nation as Traditional Owners of the land on which it is situated in Melbourne and Geelong, and pays respect to their Elders, past, present and emerging.

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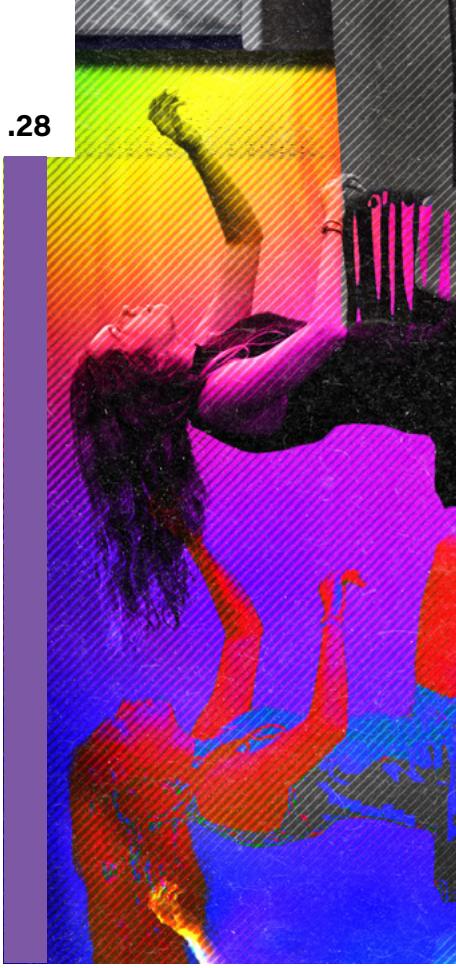

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> “To a good first approximation, people simply don’t change their minds about anything that matters.”

DANIEL KAHNEMAN

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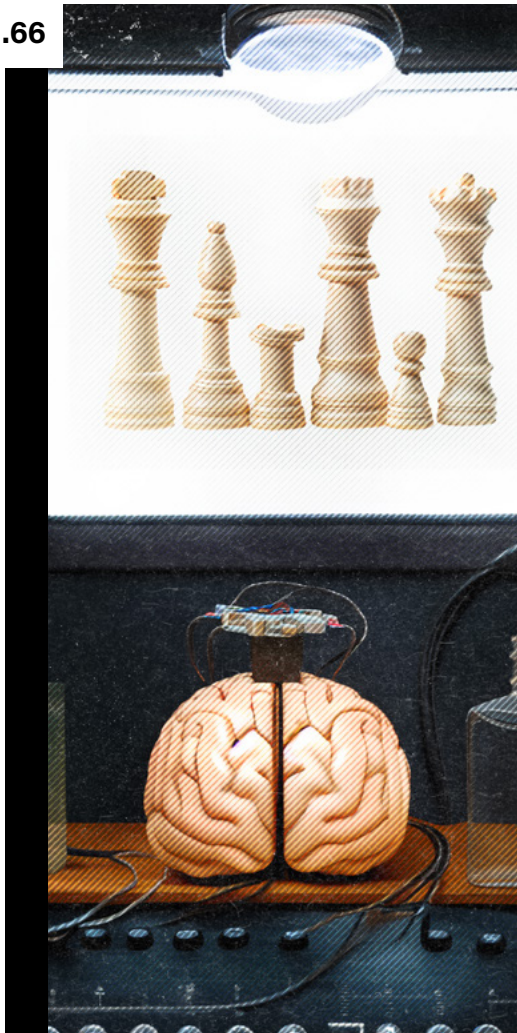

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Seth Godin writes one of the most popular marketing blogs in the world, at seths.blog. He is the author of twenty-one books, and has been inducted into the Marketing Hall of Fame. He is also the founder of the altMBA.

Patrick House holds a PhD from Stanford University. He is a neuroscientist and writer, whose scientific research focuses on the neuroscience of free will. His latest book is Nineteen Ways of Looking at Consciousness.

Morgan Housel is a partner at Collaborative Fund. He is a two-time winner of the Best in Business Award from the Society of American Business Editors and Writers. He serves on the board of directors at Markel. His latest book is Same As Ever.

Daniel Kahneman is the Eugene Higgins Professor of Psychology at Princeton University, Professor of Psychology and Public Affairs Emeritus at the Princeton School of Public and International Affairs, and winner of the 2002 Nobel Prize in Economic Sciences.

Eric Monnet holds a PhD in Economics from the Paris School of Economics, where he is Professor in Economic History. He is also a Research Consultant at the Banque de France. His latest book is Controlling Credit: Central Banking and the Planned Economy in Postwar France 1940–1973.

Gina Poe holds a PhD in Neuroscience from UCLA, where she is currently Eleanor Leslie Professor of Innovative Brain Research. She is currently director of the UCLA COMPASS-Life Sciences and BRI-SURE programs.

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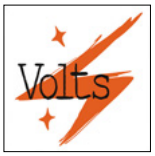

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THE PODCAST READER
PUBLISHED BY DIALOGUES MEDIA FOUNDATION
PO BOX 541 CARLTON NORTH VIC 3054

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PUBLISHED IN 2023

Printed by Contract Publishing UK (CPUK) Limited

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FSC www.fsc.org MIX Paper from responsible sources FSC® C007821

ISSN 2653-1623 PPPN 100029061

The Art of Spending Money

How we really move the needle

MORGAN HOUSEL
THE MORGAN HOUSEL PODCAST, 2023

Hello, this is Morgan Housel. I'm the author of *The Psychology of Money* and I guess I have a podcast now. I want to talk about the art of spending money. It's a topic I've thought a lot about, and I'm going to be writing about a lot in the future.

Let me start with a little story I heard recently that I think is so fascinating. It's about Jack Welch, the former CEO of General Electric. He was a big iconic CEO back in the 1990s. When he was ain his heyday, he had a heart attack and almost died. He made it through, of course, but many years later he was asked what was going through his mind when he was in the ambulance on the way to the hospital in what easily could have been his last moments alive on earth.

And what was going through his mind was, god damn it, I didn't spend enough money. That's what was going through his mind in what could have been his last moments alive. Which I find fascinating. He was asked why that was the case. Why would he possibly be thinking about not spending enough money as his life might be flashing before his eyes? And he said, 'We are all products of our background. I didn't have two nickels to rub together when I was young, so I've always been cheap and I've always bought cheap wine. And after the heart attack, I swore to god that I would never buy a bottle of wine for less than $100.'

To me it's just so fascinating that you have somebody who is in their seventies, who's lived an amazing life, and as they're looking back on what may have been their last moments, and that's what's going through their mind. Money is so complicated. There's a scientific side of it, but there's this human element that can defy logic. It's personal and it's messy and it's emotional. Behavioural finance is well documented, but most of the attention has gone to how people invest their money, how they think about volatility and greed and fear, and that kind of stuff.

Jack Welch's story shows how much deeper the psychology of money can go. And how you spend your money can reveal this existential struggle of what you find valuable in life. Who you want to spend


FOR
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your time with, how you want to be remembered, why you chose your career, the kind of attention you want from other people. All of these big behavioural aspects of your life can be tied up in how you choose to spend your money.

There is a science to spending money, which is related to things like how to find a bargain and how to make a budget. But there's also an art to spending money. There's a part that cannot be quantified, and it varies from person to person. In my book I call money the greatest show on earth because of its ability to reveal things about people's character and their values. How people invest their money tends to be hidden from you. But how you spend your money is much more visible. I can see what you spent your money on. I can see your house. I can see your car. I can see your clothes. So what it shows about who you are can be even more insightful than how you invest.

Everybody's different, which is part of what makes this topic so fascinating. There are no black and white rules. What I want to do with the rest of this podcast is share with you thirteen of what I think are some of the most interesting little nuggets, little anecdotes, regarding the behavioural sides of spending money, and the art of spending money that I've come across. Number one, your family background and past experiences heavily influence your spending preferences. Years ago, I came across this quote from *The Washington Post* as from June of 1927, the roaring 1920s, the last hurrah before the Great Depression. The headline said, 'The more you are snubbed while poor, the more you enjoy displaying your wealth when rich.' I think that is timeless. It explains so much. After the COVID-19 lockdowns, there was this concept of revenge spending, just a furious blast of conspicuous consumption, letting out everything that had been pent up and held back in 2020. And revenge spending, I think, happens at a broad level, too. The most stunning examples I've seen of this are wealthy adults who grew up poor, who were heckled and teased for being poor as kids. Their revenge spending mentality, I think, can become permanent and last throughout their entire life. If you dig into it, I think you'll see that a disproportionate share of those who have the biggest homes, the fastest cars, the shiniest jewellery, grew up snubbed in some way. A part of their current spending isn't about getting value out of the flashy material goods. It's about healing a social wound that was inflicted on them when they were younger. Even when 'wound' is the wrong word to describe what's going on here, the desire to show the world that you've made it increases.

To someone who grew up in an old money, affluent family, something like a Lamborghini might be the ultimate symbol of gaudy egotism. But to those who grew up with nothing, that car might serve as the ultimate symbol that you've made it and you've come out on the other side. So, a lot of spending is done to fulfill a deep-seated psychological need. Much more, I think, than we give credit. If people were more introspective about how they grew up, what was painful to them when they were growing up, I think they might explain quite a bit of their current spending patterns.

Number two is what I call entrapped by spending. Rather than using money to build a life, your life is built around money. George Vanderbilt was one of the big Vanderbilt heirs, who inherited billions and billions of dollars. He spent six years building a house called the Biltmore. It's 135,000 square feet. It had forty master bedrooms and a full-time staff of nearly 400 people. The craziest thing about this is that George Vanderbilt allegedly spent very little time in the house. He was quoted talking about how little time he spent there. He said, 'The house is utterly unaddressed to any possible arrangement of life.' Of course, it's 135,000 square feet. It's basically a commercial building. It doesn't feel like a home. Nevertheless, the house cost so much money to maintain that it nearly ruined Vanderbilt. Ninety per cent of the land was eventually sold off to pay taxes, and the house was turned into a tourist attraction. You can visit it today. That, to me, is astounding. You have one of the richest people in the world, who builds one of the largest houses that's ever been built, and he's a prisoner to it. He doesn't spend any time there, but it nearly ruins him because it costs so much money to maintain. What is the benefit of that? In 1875 there was an op ed where someone says that New York socialites, 'Devote themselves to pleasure regardless of expense.' George Vanderbilt had an amazing response where he says, 'Actually, socialites devote themselves to expense regardless of pleasure.' The Vanderbilts are obviously extreme. But that is a common trait among even ordinary people. The devotion to expense regardless of pleasure. Part of this is the belief that spending money will make you happier when, by and large, it doesn't. Either because it never will or because you haven't discovered the purchases that will actually bring you joy.

Your reaction is that you must not be spending enough. So you double down again and again and just keep spending money thinking that eventually it's going to make you happy. I've often wondered how many personal bankruptcies or financial troubles were caused by spending that brought people no joy to begin with. It has to be enormous. And it's a double loss at that point, because not only are you in financial trouble, but you didn't even have any fun getting there.

> How people invest their money tends to be hidden from you. But how you spend your money is much more visible. [...] what it shows about who you are can be even more insightful than how you invest.

There's no upside at all. I have this old friend who buried himself in credit card debt to go skiing in Europe, and he loved every single second of it. That I can wrap my head around. That decision makes sense, even if I wouldn't necessarily recommend burying yourself in credit card debt. But he is in control of his finances. He knew exactly what he was doing. But what about those whose spending is just driven by the belief that money is to be spent regardless of what pleasure it might bring? Money has them by the neck. They are held captive by its influence. They are prisoners to their own money.

Number three. This is what I call frugality inertia. When a lifetime of good savings habits can't be transitioned into a spending phase. I think what a lot of people want out of money is the ability to stop thinking about money. They want to have enough money so that they can stop thinking about it and just focus on other stuff. But that ultimate goal can break down when your relationship with money becomes an ingrained part of your personality. You struggle to break away from focusing on money because the focus itself is a big part of who you are.

If you developed an early system of saving money and living well below your means, great. That's awesome. You've won. But if you can never break away from that system, and you insist on a heavy savings program well into your retirement years, what does that look like? Is that still winning for a lot of people? No, it's not. I talk to a lot of financial planners who say that one of their biggest challenges is getting clients to spend their money in retirement. Even an appropriately conservative amount of money. So many of them just can't. Frugality and savings become such a big part of some people's identity that they can never switch gears. For some people, that's fine. That's okay because watching money compound gives them more pleasure than they would ever get spending it. But that's maybe 5 per cent of people. But those whose ultimate goal is to stop thinking about money become stuck. Refusing to recognise that you've met your goal can be just as bad as never meeting the goal to begin with.

Number four. The emotional attachment to large purchases, particularly buying a house, especially your first house. My wife and I pride ourselves on making unemotional financial decisions. But many years ago when we were in the market for our first house we found one online on Zillow that we liked. As we headed out for a tour, we promised ourselves that we would not do anything rash. This was just gathering information, seeing what was out there. As we pulled into the driveway of the house that was for sale, my wife says, 'I love it.' And I did too. It was awesome. We had an infant son, our first child, and there was a kid's tree swing in the front yard. Everything was perfect. And after that moment, that was it. There were a lot of emotions in the equation that were involved in this, and there's nothing we could do about it. It was an emotional decision, full stop. We have zero regrets. The house was great and it worked out. It was our first house. Everything was awesome. But no one should pretend that you can make a life changing decision that will massively impact you and your family and treat it like it's a math problem, like it's a spreadsheet equation that you're just trying to find the answer. That's just not how it works.

Jason Zweig of the *Wall Street Journal* once wrote about his mum selling her longtime house. He wrote, 'I have no emotional attachment to the house. I never liked it physically,' his mum told them. But everything important that ever happened in our life as a family is here, and I just can't leave that all behind. If I said, how much are the memories with your kids worth? You would say it's impossible to put a dollar amount on that figure. You can't. But if I said, how much is the house where you formed those memories with your kids worth? Or how much does staying in your local town impact your salary? You could probably spit out an exact dollar figure with ease.

Understanding the difference between those two – between the emotions and the memories and the sentimental value of some of your big purchases and the ease at which you are able to attach a dollar

amount to the actual purchases – that explains a lot of spending decisions.

Number five. The joy of spending can diminish as income rises because there's less struggle, sacrifice and sweat represented in your purchases. In his 1903 book, *The Quest for the Simple Life*, author William Dawson writes that, 'The thing that is least perceived about wealth is that all pleasure in money ends at the point where economy becomes unnecessary.'

The man who can buy anything he covets without any consultation with his banker values nothing that he buys. Now consider how you felt when you got your first paycheck from your first job if you celebrated with as little as a milkshake from McDonald's. You probably had this amazing feeling of like, wow, I did it. I bought this. I bought this with my own money.

Going from not being able to buy anything to being able to buy something is amazing. The gap between struggle and reward is a big part of just what makes people happy. Contrast that with later in your career when hopefully you have some savings and your paychecks have grown. It's not that spending won't make you happy. It's that it won't be as thrilling and as adrenaline inducing as it was when there was more struggle behind each dollar. I know a guy who has a private chef. He is served five-star meals three times a day, and he's had this arrangement for several years. It's amazing. I would be lying through my teeth if I said I was not even just a little bit jealous. But I also wonder if the joy diminishes over time, because he doesn't have to struggle to get those meals. There is no anticipation. There is no looking forward to a favourite restaurant. There is no making reservations.

There is no contrasting gap between a 'normal meal' and the daily delicacy that he gets served. There is a saying that I love. That the best meal you'll ever taste is a glass of water when you're thirsty. I think all forms of spending money have that equivalent. I'll end with these very wise words that I like, from, of all people, Richard Nixon. This was after he left office, and he was being interviewed by David Frost. They covered many different topics. Richard Nixon talks a little bit about money, and at one point he says, 'The unhappiest people of the world are those in the international watering places of the south coast of France and Newport Beach and Palm Springs and Palm Beach. They go out to parties every night. They play golf every afternoon. They drink too much. They talk too much. They think too little. They're retired. They have no purpose. And while there are those around us who would disagree with this and say, wow, if I could just be a millionaire, that would be the most wonderful thing in the world. If I could just not have to work every day, if I could just be out fishing or hunting or playing golf or travelling, that would be the most wonderful life in the world. They don't know life because what makes life mean something is a purpose, a goal, the battle, the struggle. Even if you don't win.'

That is the end of Nixon's quote. I just think that's so true. There couldn't be anything truer than that. That it is the gap between struggle and what you have that actually brings joy to spending money.

Number six. Asking three-dollar questions when $30,000 questions are all that matter. There is a saying that if you save a little bit of money each month at the end of the year, you will be surprised with how little you still have. Author, and a friend of mine, Ramit Sethi, says that too many people ask three-dollar questions, which is like, can I afford a latte?, when all that really matters with your money and your financial success are the $30,000 questions, like, where should I go to college?

There was a historian named Cyril Parkinson who coined a thing called Parkinson's Law of Triviality. It states that the amount of attention that any problem gets is the inverse of its importance. Parkinson described a fictional corporate finance committee, which had three tasks to resolve at their meetings. They have to approve of a $10 million nuclear reactor. They have to approve $400 for an employee bike rack, and they have to approve $20 for employee refreshments in the break room. He says that the committee will very quickly approve the $10 million nuclear reactor because the number is too big to contextualise. The alternatives are too daunting to even consider. No one in the committee even knows how a nuclear power plant works. They just approve it. The bike rack gets a lot more debate because committee members argue whether a bike rack should be wood or it should be metal, or where it should go.

But the $20 employee refreshments take up two-thirds of the meeting, because everybody has a strong opinion on what's the best coffee, what are the best cookies, what are the best chips, whatever. Most households, or many households I would say, operate the same. The big questions like, where should we live? Where should we go to college? Where should we send our kids to college? When should we retire? Those questions don't take up that much the debate. The big debate comes regarding, say, should we go out for dinner? Should we buy lattes? What kind of clothes should we wear? Those small problems are easier to tackle because they are less daunting than the huge problems that actually move the needle.

For most households, basically, three or four things are all that move the needle: housing, education, transportation, and healthcare and childcare. Those are the things that should gain the huge majority of your attention.

Number seven. Social aspirational spending, which is trickle-down consumption patterns from one social economic group to the next. Many years ago, the economist Joseph Stiglitz wrote something that I liked. He said, 'Trickle-down economics may be a chimera, but trickle-down behaviourism is very real.' There is no such thing as an objective level of wealth. Everything is just relative to something else. People look around and say, what's that person driving? Where are they living? What kind of clothes are they wearing? And their aspirations are calibrated according to the people around them. Recently, I spoke with *Wired* magazine founding executive editor Kevin Kelly, and he brought up this interesting point. He said, 'If you want to know what lower income groups are going to spend, are going to aspire to spend their money on in the future, look at what higher income groups spend exclusively on today.' He brought up that European vacations were once the exclusive playground of the rich. Then it trickled down to just the merely wealthy, then down to the middle class. Same with college education. A college education used to be reserved for the very highest earning households, and then it spread. It spread down to the affluent, to the middle class, even the lower ranks.

Same with investing. In 1929, at the peak of the roaring 1920s, stock bubble, only 5 per cent of Americans owned stocks. Pretty much, stocks were reserved for the very wealthy. Today, more than half of US households own stocks in some form. So, it trickled down from the very rich to the ordinary people. Same with two-car households and lawns and walk-in closets and granite countertops and six-burner stoves and jet travel. Even the entire concept of retirement. All of those things started as the exclusive domain of very wealthy people, and then it worked its way down throughout society.

Part of the reason these products spread to the masses is that they became cheaper. But the reason they got cheaper, by and large, is because there was so much demand from the masses, hungered by their aspirations that push companies to innovate for new ways of mass production. People like to mimic others, especially those who appear to be living better lives. It's always been like that, and it always will be like that.

Number eight. An underappreciation of the long-term costs of purchases with too much emphasis on the initial sales price. It is common to find someone today who bought their house for, say, $60,000 in 1974, and today it's worth, say, $350,000. The owner feels like they've made an amazing investment, the best investment of their lives. But those numbers equate to an average annual return of 3.75 per cent. Now, property taxes tend to average about 1 per cent, so that brings our real return to 2.75 per cent. Maintenance and repairs vary greatly, but you should expect to spend 1–3 per cent per year of your home's value on upkeep. If you've earned, let's call it 4 per cent per year over the last 50 years, and then you take out property taxes, take out upkeep, where does that leave our long-term return? It's actually quite dim. Now it is easy to calculate what you paid for the house and what you sold for it. Those numbers are easy. Costs are much harder to figure out. They tend to be a slow drip over time, which are easy to ignore, but they add up very fast. It is the same for cars and boats and a lot of your hobbies. You could even say the cost of smoking cigarettes is the price of a pack, plus the long-term costs of medical care associated with it. One is very easy to calculate and the other is very difficult. There is often an emphasis on the price that we paid or the price that we sold, and almost a complete ignorance for the costs that tend to go along with it.

Number nine. No one is as impressed with your possessions as you are. When you see someone driving a nice car, you rarely think, 'Wow, the guy driving that car is cool.' Instead, you think, 'Wow, if I had that car people would think I'm cool.' Subconsciously or not, this is how people think. There is a paradox here: people tend to want wealth to signal to others that they should be liked and admired. But, in reality, those other people often bypass admiring you, not because they don't think wealth is admirable, but because they use your wealth as a benchmark for their own desire to be liked and admired. That's the paradox of wealth. I've called it the man in the car paradox. That people just want to be the guy in the driver's seat. But when you see somebody in the driver's seat, you don't actually admire the driver. You just imagine yourself as the driver.

When my son was born seven and a half years ago, I wrote a letter to him on the day that he was born. It's like financial advice for my newborn son. And it says, in part, 'You might think that you want an expensive car and a fancy watch and a huge house, but I'm telling you, you don't. What you want is respect and admiration from other people. And you think that having the expensive stuff will bring it. But it almost never does, especially from the people who you want to respect and admire you.' Now, I like nice homes and I like nice cars as much as anyone else. The point

here is not to shy away from nice things. It's just to recognise that no one is as impressed with your stuff as you are. No one's thinking about you as much as you are. They're busy thinking about themselves. This is true for virtually everyone. People generally aspire to be respected and admired by others, and using money to buy fancy things may bring less of it than you imagine. If respect and admiration are your goal, be careful how you seek it. Humility and kindness and empathy will bring you much more respect than the car that you drive or the home you live in ever will.

Number ten. Not knowing what kind of spending will make you happy because you haven't tried enough new and strange forms of spending. Here I would like to use a little analogy. Evolution, in my mind, is the most powerful force in the world. It is the force that is capable of transforming single-cell organisms into modern humans. Nothing in the universe is more powerful than evolution. But evolution has no idea what it's doing. There is no guide. There is no manual, there is no rulebook. It's not even necessarily good at selecting traits that work. The power of evolution is that it tries trillions and trillions of different mutations, and is ruthless about killing off the ones that don't work. What's left? The winners are what sticks around.

There is a theory in evolution called Fisher's fundamental theorem of natural selection. It's the idea that variance equals strength, because the more diverse a population is, the more chances it has to come up with new traits that can be selected for. Nobody can know what trait will be useful. That's not how evolution works. But if you create lots of traits, the useful ones, whatever they might be, will be in there somewhere. I think there's an important analogy here about spending money, because a lot of people have no idea what kind of spending will make them happy. What should you buy? Where should you travel? How much should you save? There's no single answer to those questions, because everybody's different. People default to what society tells them, which is just whatever thing is most expensive will bring you the most joy. But that's not how it usually works. You have to try spending money on tonnes of different oddball things before you find what might work for you. For some people, it's travel, while others can't stand being away from home. For other people, it's nice restaurants. Other people don't get the hype, and prefer cheap pizza and chipotle. By the way, that's me. I know people who think spending money on first-class plane tickets is a borderline scam. And there are other people who will not dare to sit behind row four. To each their own. Everybody is different. The more different kinds of spending that you test out, the closer you will likely get to a system that might work for you. These trials don't have to be big. Maybe it's a $10 new food item. A $75 treat here, slightly nicer shoes, whatever it might be.

My friend Ramit Sethi says 'Frugality is about choosing the things you love to spend extravagantly on and then cutting costs mercilessly on the things that you don't love.' There is no guide to what is going to make you happy. You just have to try many different things and figure out what it is that fits your personality.

Number eleven. The social signalling aspect of money on both things you buy for yourself and charity given to others. I heard a saying recently that I really liked. It was 'That if you get public recognition for donating money, it's not charity, it's philanthropy. And if you demand recognition, then it's not even charity. It's a business deal.' There's a clear social benefit to you, the giver, in addition to the recipient. I don't mean that in a negative way. Good donations to worthy causes would plunge if donors didn't get recognition. But most forms of spending, I think, are like that. They have two purposes. One is to bring some sort of utility to the owner, and then the second is to signal something to other people. Homes are like that. Cars are like that. Clothes, jewellery obviously fit into that category, but even travel does as well.

How many vacation destinations are picked, at least in part, by what people will think will make a good Instagram picture, or that it just sounds cool to go there. My guess is that the majority of people who travelled to Bali fall into that category. They went to Bali not because it's actually the most amazing place to go, but because it sounds good and it takes a good picture for other people to look at. Psychologist Jonathan Haidt has a great saying. I think it explains so much. He says 'people don't communicate on social media, they perform for one another.'

And spending money is like that, too. It's not always a bad thing. If you've merely thought about what clothes you'll look best in before you leave the house in the morning, you've engaged in signalling. It's not always about even just looking the best. Intentionally dressing casually to a formal meeting, like wearing a hoodie to a formal meeting, sends a powerful message about who holds the power. Before being caught in his sham, Sam Bankman-Fried said that he intentionally didn't wear pants to meetings. He always wore shorts to create a sense of mystique about who he was. That's signalling, too. The thing to recognise is that spending money on yourself is often done with the intent of influencing what other people think about you. That should spark three questions. Number one, whose opinion are you trying to influence? Number two, why? And number three, are those people even paying any attention to you?

Number twelve. The social hierarchy of spending, positioning you against your peers. This is a really important one. There's an old joke. You've probably heard it. There are two hikers out in the woods, and they come across a bear. One of the hikers puts on his running shoes and starts to run. The other hiker says, Are you crazy? You can't outrun a bear. And the runner says, I don't need to run faster than a bear. I just need to run faster than you. All success is simply relative to somebody else, usually those around you. There's no objective measure of wealth or success. It's just relative to the people around you. Are you doing better or worse than them? That's important for spending money, because for so many people, the question of whether you are actually buying nice things, the actual question of what you are asking is, are the things you're buying nicer than other people's things? The question of whether your home is big enough is actually just is your home bigger than your neighbours? That's the question you're actually trying to ask. Not only is it the urge to one-up your peers, but you also may feel the need to continually surpass your own spending.

Is the vacation that you take this year better than the one you took last year? Is your next car fancier than your old car? You're not just trying to match your peers. You're trying to one -up yourself. So, money to some people is less of an asset, and I think it's more of a social liability. It indebts them to a status-chasing life that can leave them miserable. It's a dangerous trap if you don't recognise the game and how that game is played. This has been going on forever. Montesquieu, wrote 275 years ago, 'If you only wish to be happy, this could be easily accomplished. But we wish to be happier than other people, and this is always difficult, for we believe others to be happier than they are.'

Last one. Number thirteen. Spending can be a representation of how hard you've worked, and how much stress went into earning your paycheck. Somebody who works 100 hours a week and hates their job may have an urge to spend their money frivolously in an attempt to compensate for the misery of how their paycheck was actually earned.

Never have I seen money burn a hole in someone's pocket faster than a lawyer or an investment banker receiving their annual bonus. Because after twelve months of working until three in the morning, modelling in Excel the most god-awful miserable jobs, you have an urge to prove to yourself that it was all worth it, to offset what you've sacrificed. It's like someone who is held underwater for a minute when they get above water, they don't take a calm breath, they gasp. They're compensating for what they lost.

"... I think those most capable of delayed gratification, the most patient people with their money, are often those who enjoy their work and genuinely love what they do."

It's the same for people who've worked their asses off in a miserable job, who have that same sense of gasping with their money to spend it as fast as possible.

I think the opposite can actually hold true as well. I can only back this up with anecdotal experiences, but I think those most capable of delayed gratification, the most patient people with their money, are often those who enjoy their work and genuinely love what they do. The pay might be good, but the urge to compensate for their hard work with heavy spending just isn't there.

I will wrap this up by saying spending money to make you happy is hard if you're already happy.

Thank you so much for listening.

The Morgan Housel Podcast

Published in 2023 and transcribed for The Podcast Reader.

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On judgement, biases and intellectual honesty

To be approximately right

DANIEL KAHNEMAN
THE JOE WALKER PODCAST, 2023

Interview by Joseph Walker

Joseph Walker: Daniel Kahneman, welcome to the podcast.

Daniel Kahneman: Pleasure to be here.

JW: Danny, there are many qualities of yours I admire, but perhaps the quality I admire most is your intellectual honesty, and a couple of moments exemplify this for me. First was your response to the replication crisis with respect to priming. Obviously, there was a quite famous and emphatic chapter in *Thinking, Fast and Slow*, and then the blog post where you really graciously and humbly retract that chapter.

More recently, there is the incredible lecture you did on the topic of adversarial collaboration for Edge.org. Reading it, I was just stunned by how intellectually honest you were. Let me quote a couple of pages from the essay. First, referring to priming, you say, 'It turns out that I only changed my mind about the evidence. My view of how the mind works didn't change at all. The evidence is gone, but the beliefs are still standing. Indeed, I cannot think of a single important opinion that I've changed as a result of losing my faith in the studies of behavioural priming, although they seemed quite important to me at the time.'

Then, later, you go on to make the general point that, 'To a good first approximation, people simply don't change their minds about anything that matters.' I guess my first question is I find it hard to fathom that you can be simultaneously so self-aware and also, as you admit, and just like the rest of us, not good at changing a mind when challenged. Have you gotten any better at changing your mind as you've gotten older?

DK: No. I think I'm actually known for changing my mind. This is one of the traits that all my collaborators complain about, because I keep changing my mind. But I keep changing my mind about small things. Then what I discovered, in part while preparing that talk on adversarial collaboration, is that there are things on which I just won't change my mind. Some of these I've believed since I was 17 or 18, so certainly are not going to change now.

JW: And what are some of those beliefs?

DK: Well, they're tastes more than beliefs. There is a kind of psychology I like and a kind of psychology I don't like. There are methods that appeal to me and methods that I find sort of repugnant. Among the competing psychological theories of the twentieth century, there was a holistic Gestalt theory and then there was a behaviouristic theory, to which I attributed

Photograph: Volodymyr Hryshchenko

a sort of false precision. Since I was 18, I have had a very clear preference for the holistic over the falsely precise. I've kept that taste all my life. And it's just a taste. It's not any better than the other taste. It's just my taste.

JW: I see. I have a question around the topic of tastes and that is: Should psychologists worry less about how descriptively accurate their models are and more about adopting positions that are stronger and starker than what they might actually believe, in order to contribute to an intellectual dialectic?

DK: Among matters of taste, there is a distinction between people who prefer to be precisely wrong or approximately right. I'm on the side of those who'd rather be approximately right. I was married to my late wife, Anne Treisman, who was an eminent psychologist and she very clearly was sticking her neck out all the time, theoretically taking extreme positions. Sometimes she was wrong, but she defended those positions and found ways of defending them. Whereas I'm sometimes not very easy to refute because I'm fairly vague, but I think I'm approximately right a lot of the time.

JW: I see. Who's the most intellectually honest person that you've met or interacted with in your life?

DK: That's a hard one. I think most of the people I've interacted with have assumed they were intellectually honest. All of us are not honest in more or less the same ways — we're defensive. I find that a difficult question because it's not a trait. The default is to be honest. I can't think of people I've interacted with whom I consider dishonest. There are a few, and I won't name them.

JW: *The Undoing Project* has my favourite ending of any non-fiction book. In fact, I think I teared up when I was reading it. I was watching an interview with Michael Lewis and he said that story – of you waiting by the phone, and when it didn't ring, you finally allowed yourself to think about what it would be like to win the Nobel Prize and what you would do and how you would do for Amos what he had never done for you or had never had the chance to do for you. You only told him that story seven years into your interaction with Michael Lewis?

DK: I don't remember when I told him that story. It was pretty straightforward, the story of waiting for the phone call. It was actually quite amusing. I don't remember what he wrote about it. The true story is that I did know that this was coming up. There had been an audition for the Nobel Prize, there sometimes is sort of a workshop with the Nobel committee, where clearly they're sizing you up. And that had happened the year before. I knew that either I was going to get it or very likely I just wasn't going to get it. So, we were waiting by the phone because you know when it's going to happen. The phone didn't ring for a long time. My wife went to exercise, and I went to write a letter – I still remember, a reference letter for somebody – and then the phone rang, and they take elaborate precautions, so you believe that it's not a prank. I walked into my wife who was exercising, and I told her, 'I got it.' And she said, 'You got what?' That was the beginning of a very exciting day.

JW: Was there anything important that *The Undoing Project* missed?

DK: Well, *The Undoing Project,* it's not fiction, it's non-fiction, but the characters are drawn to be quite extreme. There are quite a few things I would have written differently.

JW: In what specific ways?

DK: Well, there is an incident at the very end of the book. Amos, who had been my closest friend and was like a brother to me. We had been for each other, I think, the most important person in each other's life, because we had done so much to change each other's life. We were having a conversation – that must have been a couple of days before he died, about three days. He said, 'I wanted you to know that of anybody I've known, you are the one who caused me the most pain.' And I answered without hesitating: 'Ditto. The same.' Michael couldn't bring himself to write that. He softened this. Although I had told him 'ditto', I was quite annoyed with him because the ditto ... that expressed our interaction, of course: Amos expected me to say ditto, and we went on and talked as if nothing had happened.

JW: I see.

DK: That's the one thing, actually, that I felt Michael shouldn't have done.

JW: When you say that was characteristic of your interaction with Amos, is that like an Israeli thing or was that special about your interaction?

DK: It's an Israeli thing, but we were really very close and very open with each other. It didn't come as a huge shock when he told me what he told me, and I'm sure it didn't shock him to hear my answer. It was the kind of interaction we had.

JW: I have some questions I really want to ask you about the concept of great partnerships, and

> “Since I was 18, I have had a very clear preference for the holistic over the falsely precise. I’ve kept that taste all my life.”

speaking here about great partnerships, like world-class partnerships, as opposed to merely good partnerships: Watson and Crick, Lennon and McCartney, Amos and Danny. In a strange way, I almost feel jealous of your partnership with Amos. I hope that I can find that at some point in my life.

DK: I think you’re right to be jealous. It’s an extraordinarily fortunate thing when it happens.

JW: I want to ask whether we can systematise the formation and maintenance of world-class partnerships or whether, on the other hand, there’s just something kind of mysterious and ineffable and unpredictable about them?

DK: Well, I mean, it’s clearly unpredictable, and I’m not sure that it’s the same everywhere, although quite possibly it’s true for the better ones. The mechanism in my interaction with Amos, I think what happened, was that very often he understood me better than I understood myself. There is a stage in creative thinking when you say things that later turn out to be important, but you don’t yet understand what you’ve said. You have a glimmer. And he would immediately see through the fog of what I was saying much more clearly than I did. That is an intense joy, and it also really allows a kind of creativity that a single person doesn’t have.

JW: Was that the key way in which you were complimentary? Were there any other ways?

DK: We were complementary in many ways. We had different styles. I was better at intuition, I think; he was better at precision, and that was very clear. At the same time, I could understand his precision and he could appreciate my intuition, and I had a lot of precision and he had a good intuition. We were different people, although we could complete each other’s sentences.

JW: Have you read Montaigne’s essay ‘On friendship’?
DK: I must have done when I was a child, but I wouldn’t remember.

JW: There’s this lovely passage where he talks about his best friend. They only became friends as adults. His best friend’s name was Etienne De La Boétie.

DK: Oh, Étienne De La Boétie. Oh, yes.

JW: Yeah, he’s obviously famous in his own right. There’s this lovely line where Montaigne is trying to articulate what made their chemistry so special. He says, ‘I feel that it cannot be expressed except by replying: “Because it was him; because it was me.”’ That reminded me of your partnership with Amos.

DK: Beautiful. That is beautiful. Indeed, there is something that feels unique about the interaction, but at the same time, it was fairly clear while it was happening that we were better as a pair than either of us was individually. We did good work individually, separately, but the work we did together clearly is one step beyond and in a combination of amused creativity and a fair amount of precision. That combination really came from the interaction.

JW: That leads me to my next question, and that is: are pairs the fundamental creative unit? So, all else being equal, would it actually be better just to have two people working on a problem or a new idea than, say, three or four?

DK: I think it would be very unlikely – it would be very difficult – to imagine a threesome interacting in that particular way. I’d never thought about it that way. I’m inclined to agree that this particular kind of interaction where you build on each other and you improve each other in the interaction, that feels like a pair interacting.

JW: There’s this really cool book called *Powers of Two* about this idea. I was also reflecting on it in the context of, as I told you before we started recording, I’m interviewing Katalin Karikó tomorrow in Philadelphia, and she actually did her work in partnership with a guy called Drew Weissman at the University of Pennsylvania. They worked together intensely for almost a decade, but only as a pair. That was because they couldn’t get grant funding to support more researchers joining their team. But I think if you reflect on it, it probably turned out that that was a good thing for their research.

DK: Yeah. I did quite a bit of work without Amos, but I always had the feeling that if I had done it with him, it would have been better.

JW: Should researchers, should start-ups, think more about, where possible, creating teams of two as opposed to adding more people to a problem?

DK: I'm not sure that teams can be created by somebody else. Teams have to develop, and pairs have to develop. But as a unit, taking two people: that I think may be a good idea. You may want a team that consists of several pairs because for many projects, two isn't large enough.

JW: I'd like to talk about rationality. In my view, and obviously the view of many others, your work with Amos is a knockout blow to the idea that von Neumann and Morgenstern's theory could be a description of real human behaviour. So *Homo Economicus* is clearly descriptively inadequate. Is it also inadequate as a norm? How has your thinking on the correct normative model of rationality changed over time?

DK: Consistency of beliefs and preferences, which are the essence of rationality in that model – it's important to see what it implies. It's not the same thing as reasoning correctly, that is, of saying two things that are consistent with each other in the same conversation. It's that your beliefs, the whole system, your beliefs and preferences, taken one at a time, make up a consistent system. And that is psychologically a non-starter. That's simply because our beliefs and our preferences are so context dependent and the context is highly specific and momentary, that this type of consistency is not conceivable. And being inconceivable, it's not a very useful norm either. Put it this way: there were many attempts to create a looser model of rationality that would accommodate certain paradoxes of choice, and we never believed in that. We never thought there would be an alternative, more tolerant model of rationality that would be usefully descriptive. So that never tempted us.

JW: Interesting. So, do you have any hunches as to what a better normative model of rationality would be?

DK: No. I mean, I don't use the word. I prefer to avoid it. For me, rationality is a technical term. It is rationality in the von Neumann-Morgenstern decision theory or in economics. And that's it. Otherwise, I think I would ask of people that they be reasonable, because 'rational' is a work that's taken, so far as I'm concerned, in a very precise way, by something that is descriptively a non-starter.

> "We were having a conversation – that must have been a couple of days before he died, about three days. He said, 'I wanted you to know that of anybody I've known, you are the one who caused me the most pain.' And I answered without hesitating: 'Ditto. The same.'"

JW: Without putting words in your mouth, does that imply that the rationality versus irrationality debate is just not very useful?

DK: Well, you know, it's been very productive. There are debates that will never be resolved, but they're exciting. It sounds like an important issue to debate whether humans are rational or not. It sounds like a worthwhile enterprise, and a lot of good stuff came out of that. Our work, to a very large extent, came out of taking a stance against a technical definition of rationality. Some debates can be productive without any hope of resolving them. I think the rationality debate belongs to that class.

JW: I guess it's all about the dialectic.

DK: Yeah.

JW: I want to ask some questions about an evolutionary approach to biases and heuristics. Are you familiar with Coren Apicella's experiment on the endowment effect among the Hadza?

Photograph: Dominik Lange

DK: I probably saw it. You'd have to remind me; at this stage, I don't store experimental results as well as I used to.

JW: No worries. The Hadza are one of the last hunter-gatherer societies on Earth, who live in North Tanzania. In the experiment, participants are randomly given one of two coloured lighters that they use to light campfires, and then they're given the opportunity to exchange the lighter for one of a different colour. In similar experiments on Western populations, as you well know, because you've done some of the most famous ones, about 10 per cent, give or take, of people trade whatever object or item they're given. But for the Hadza in this experiment, they traded about half of the time, 50 per cent of the time, which is what you'd expect for perfectly rational traders. So there was no endowment effect, although there was some endowment effect for Hadza living in more market-integrated camps. And so, my question is, to what extent are biases and heuristics the products of culture rather than biology?

DK: Well, that separation of culture and biology is tenuous. I mean, they clearly are in interaction. You can clearly overcome a lot of biological tendencies through culture. I mean, we do not act naturally, you and I, in this situation. Our interaction is conditioned by culture. I can readily see that in certain cultures, you might have a norm of exchange where the polite thing is to exchange and not to hold on to what you have, even if people's tendency is the opposite. I think that's true of babies. When you try to snatch something from a baby, there will be a reaction. I mean, the baby hangs on. In a certain way, I think people don't like losing things that are under their control. I do think it's very likely that there is an asymmetry between the importance of grabbing something that you don't have and the importance of holding on to something you do have. That's how I think of the endowment effect. I don't think of it as a law of nature. I mean, clearly it's possible to overcome culturally.

JW: I see. The cultural norms are kind of overriding the biological programming.

DK: There are some instances of trading among animals, but it's not very common. The primary typical response, animal response, is to hang on to what you have.

JW: Should evolution be the unifying theoretical framework behind the heuristics and biases research program?

DK: There have been attempts along those lines to say that. Well, if you assume that we have evolved to be as good as we can be, then if we have biases, the biases must be functional. I don't much see the point of that because I think of biases of judgement and the heuristics that lead to them. I think of biases of judgement as a side effect of a kind of mental operation that in general works very well. It's an inevitable side effect of the way that we do things. I wouldn't segregate the biases and the flaws as a separate thing that you need a separate mechanism to explain. There is a mechanism that mostly explains behaviour that is quite functional, but under predictable conditions it leads to predictable errors.

JW: But if some cultural norms can override our biological programming, and earlier when you were talking about the distinction between culture and biology not being so clear, you were maybe gesturing at dual inheritance theory and gene culture coevolution.

DK: Well, I was, but I must say this kind of thinking has never been part of my thinking. I have never found it particularly useful to the kind of thing that I was doing. It has sometimes been used to defend rationality. Those claim that people are ecologically rational and that they're adapted to their environment. This may or may not be the case. That's not the way I think about it. That's one of those matters of taste that we were talking about.

JW: I guess I think more of Joe Henrich's research than Gigerenzer's here.

DK: Well, they don't exactly have the same position, but if you start from the point of view that what people do must be good otherwise they wouldn't be doing it, that can lead you to some productive research, and I think it has led Gigerenzer in some productive directions. Henrich, his emphasis on culture, again, is extremely compelling, but it doesn't account for everything. I think you can exaggerate the extent to which everything is culturally changeable. There is a difference, for example, between preferences. We were talking about the endowment effect earlier, and judgement and heuristics of judgement, and the preferences. Well, there are preferences. You want one thing or you want another. That's fairly straightforward. And judgement, there is an issue of complexity and of truth, and of understanding reality the way it is. And it sometimes demands a level of complexity that we don't have, that people don't have. So those are very different issues. Whether you can overcome change preferences by culture, that's one thing. Whether you can improve people's judgments by culture much beyond where we are, where educated people are today, that, I think, is very doubtful simply because culture is not going to change the limits of our attention. It is not going to necessarily change the fact that there are limits to a computational ability. There are limitations that are constrained so far as culture is concerned. They impose limitations, I think, on how much can be accomplished or how much can be improved by thinking about culture or viewing every flaw as a cultural fact. I think many flaws in our reasoning are responses to the fact that our brain is limited.

> "There are debates that will never be resolved, but they're exciting. [...] Some debates can be productive without any hope of resolving them."

JW: So, speaking of improving people's judgments, do you predict that as AI systems are developed and adopted, they will reduce the effect of biases? And will some biases be impacted more than others?

DK: Well, I think anybody who tries to predict how the AI story will develop... There is a saying in Hebrew that prophecy was given to fools. I think, really, forecasting the developments of AI makes very little sense. One thing that we can be fairly sure of is that collaboration between humans and AI doing the same thing, like a diagnostician with an AI diagnostic tool – which is an ideal that many people have in mind about the future of Human-AI interaction – I think is very unstable. That is likely to be unstable. Because if you have a human and an AI operating at approximately the same level, the AI is going to be better than the human in very short order. Simply because the ability of AI to learn from experiences is enormously larger. Simply because you can have different agents. AI, artificial intelligences, they all report and teach each other, they all learn from each other's experiences.

So, this is something humans cannot match. Anything that we predict about how humans are going to control AI, I wouldn't venture to go there.

JW: So, I actually have some questions about prediction, prophecy and forecasting. I want to ask you about reference-class forecasting, and maybe you can explain what that is. My question is, how do you go about defining the correct reference class? Because if you were trying to make a personal forecast, ideally the best reference class would contain people identical to you, but then obviously the sample size is just one. So how do you choose the scope of the reference class?

DK: Well, first let's define our terms, what the reference class is. I don't know a better way of doing this than telling the origin story of that idea in my experience, which is that, 50 years ago approximately, I was engaged in writing a textbook with a bunch of people at Hebrew University, a textbook for the high school teaching of judgement and decision making. We were doing quite well, we thought we were making good progress. It occurred to me one day to ask the group how long it would take us to finish our job. There's a correct way of asking those questions. You have to be very specific and define exactly what you mean. In this case I said, 'Hand in a completed textbook to the Ministry of Education – when will that happen?' And we all did this. Another thing I did correctly, I asked everybody to do that independently, write their answer on a slip of paper, and we all did. And we were all between a year and a half and two and a half years. But one of us was an expert on curriculum. And I asked him, 'You know about other groups that are doing what we are doing. How did they fare? Can you imagine them at the state that we are at? How long did it take them to submit their book?' And he thought for a while, and in my story, he blushed, but he stammered and he said, 'You know, in the first place they didn't all have a book at the end. About 40 per cent, I would say, never finished. And those that finished...' He said, 'I can't think of any that finished in less than eight years – seven, eight years. Not many persisted more than ten.'

Now, it's very clear when you have that story, that you have the same individual with two completely different views of the problem. And one is thinking about the problem as you normally do – thinking only of your problem. And the other is thinking of the problem as an instance of a class of similar problems. In the context of planning, this is called reference-class planning. That is, you find projects that are similar and you do the statistics of those projects, and it's absolutely clear. It was evident to us at the time, but idiotically, I didn't act on it. That was the correct answer, that we were 40 per cent likely not to succeed. Because I also asked a friend, the curriculum expert, I asked 'When you compare us to the others, how do we compare?' He said, 'We are slightly below average.' So, the chances of success were clearly very limited. So that's reference-class forecasting. Now, how do you pick a reference class? In this case it was pretty obvious. I mean, we were engaged in creating a new curriculum. In other cases, when you are predicting the sales of the book or the success of the film, what is the reference class?

So, if it's a director and he's had several films, is the reference class his films or similar films, same genre or whatever? There isn't a single answer. You were asking how do you choose a reference class. Today I'm not the expert on that. The expert is Bent Flyvbjerg at Oxford. I think what he would probably tell you is, 'Pick more than one reference class to which this problem belongs.' Look at the statistics of all of them and if they are discrepant, you need to do some more thinking. If they all tend to agree, then you probably have got it more or less right.

JW: In making predictions about the future, the reference class could also be – I mean, you could think of it as like the prior probability in a Bayesian formula. Is that an inappropriate tool in a context of radical uncertainty?

DK: Well, I don't know what you mean by radical uncertainty.

JW: A context where you don't know what all the possible outcomes are, let alone have the ability to attach probabilities to them.

DK: Then I don't understand your question.

JW: Maybe let me try and explain it another way. Are you familiar with Jimmie Savage's distinction between small worlds and large worlds?

DK: Yeah.

JW: So small worlds, in simple terms, are worlds where you can look where you look before you leap; large worlds, you have to cross that bridge when you come to it. So, I guess, quintessentially large worlds would be like choosing a romantic partner or macro economy or the chances of war between China and the US in two decades. Is reference class forecasting like a category error in those contexts?

DK: Well, there are experiments on that type of forecasting. Phil Tetlock and Barbara Mellers have those experiments where you ask people questions

with considerable uncertainty of the type of what's going to happen. Now, when you're looking at the distant future, people succeed so little that it's hardly worth talking about. When you're talking about the intermediate, relatively short-term predictions, some people are quite good at it probabilistically. These people quite often do look for reference classes, and they do look for more than one. This is part of the standard procedure of super-forecasters. Theirs is a good way of doing it. There's no good way of forecasting that will give you a very high degree of success in complex problems, but you can do better than others.

JW: Let me ask you about super-forecasting. As you alluded to, Phil Tetlock's research suggests that up to a horizon of about six months, you seem to be able to help people make better forecasts. Beyond that, as you said, the future is just shrouded in the midst of uncertainty. Presumably that time horizon of roughly six months isn't etched into the laws of the universe. Do you predict that it'll shrink, say, to like, two or three months or whatever, if productivity growth picks up for a sustained period of time and society becomes more dynamic? In other words, should we shorten Phil Tetlock's ideas as innovation or complexity increases?

DK: That's a very interesting question. What you remind me of is the claim for which there seems to be a lot of evidence that, at least in the domain of technology, change is exponential. So, it's becoming more and more rapid. It's clear that as things are becoming more and more rapid, the ability to look forward and to make predictions about what's going to happen diminishes. I mean, there are certain kinds of problems where you can be pretty sure there is progress and you can extrapolate. But, in more complex prediction questions, at a high rate of change, you really have no business, I think, forecasting.

JW: I want to ask you about bubbles, and my question is how you weigh the relative importance of cognitive biases like the representativeness heuristic – which has had a big impact on behavioural finance because it provides a natural account of extrapolation – versus social biases and things like conformity, herding, mimetic desire.

DK: Well, I wouldn't know how to answer this question. I mean, clearly both are important. Clearly, you could get bubbles from either one of these alone, and very likely both of them are operating. There is a strong tendency for people to look where other people are going and to go where other people are going. This is the herd tendency, and it clearly exists and it's clearly powerful. It's also the case that people extrapolate much too easily and they see trends. It's not that they expect them to last forever, but they expect them to last more than they are actually likely to last. That almost defines a bubble. Both of these could explain bubbles by themselves, and both of these are probably operating and have to weigh their importance. I wouldn't know how to do that.

JW: Right. And maybe the stories that tap into and reinforce the extrapolative tendencies spread socially as well.

DK: Yes, clearly. I mean, again, the distinction is not clear. Why is everybody running and how did that begin? And it's not an accident. It is something that people have in common to begin with.

JW: Okay, so because I'm an Australian, I'm really interested in the link between national culture and innovation, but specifically between an egalitarian national culture and innovation. And what's interesting to me is that you've lived in both the United States and Israel. And the United States is relatively inegalitarian, but obviously incredibly innovative – you know, the home of Silicon Valley – and Israel is famously egalitarian, like a culture of debate and criticism, people aren't always so respectful of elders or people in positions of authority, but it's also super innovative, it's famously the 'start-up nation.' Firstly, do you agree with my characterisation of the cultural differences between the two nations and what is the link between egalitarianism and innovation?

DK: Well, what you can definitely say, I think, is that where people are intimidated and a culture of intimidation, a culture of fear, culture of conformity, of extreme conformity is unlikely to be optimally innovative – although you find a lot of innovation in high-conformity cultures.

I wouldn't define the distinction of the difference between the United States and Israel in terms of egalitarian or non-egalitarian. If it's in terms of questioning authority, there's a lot of questioning authority in the United States as well. So there's probably more of it in Israel. You question everything. You certainly question each other more. You push each other more in Israel than you do in the United States. And, to some extent, when you look at creativity in Israel, you think, 'Oh, yes, this is Israeli creativity' in the sense that the fact that other people haven't been successful at doing something just doesn't intimidate them. They think they're better, and if they try to do it, they're going to do it. There is that kind of arrogance which drives a lot of innovation, saying 'Oh, sure, I can do it, it's a piece of cake.' I think it's more Israeli than it is American. It's not an essential condition for

creativity. It's a type of creativity. When you look at it, you say, 'Oh, they're creative because they are like that.' You can be creative in more than one way. Creativity doesn't line up with arrogance.

JW: I see. You mentioned lack of respect for authority being important. We could potentially distinguish two types of authority. Like, there's authority in terms of elders and tradition, but then there's impersonal authority, governments and institutions. In Israel, is there a lack of respect for both types of authority?

DK: I don't think that they question institutions more than in many other countries. It's more at the individual level. I mean, these days you're seeing a lot of foment in Israel.

JW: Let me ask you some questions about *Noise*. In *Noise*, you, Cass and Olivier anticipate seven major objections to noise reduction strategies. I want to get your reaction to a possible eighth objection. So there's this book, I'm not sure whether you've heard of it, called *Seeing Like a State* by James Scott.

DK: Yes, I read this, actually.

JW: Okay, awesome. So the book, as you know, talks about legibility, and one of the key ingredients for authoritarianism is highly legible states. States where things are like well organised and indexed, which allows governments and possibly even totalitarian powers to better exert their control. Obviously, one kind of example of this that he discusses in the book is Holocaust survival rates. And he discusses some evidence around the fact that the greater legibility of the state, the worse it was for the Jews. So, in the Netherlands, according to Scott, one reason the Jewish survival rate was low was the Netherlands had very accurate census records. And so, I guess the potential objection here is that noise reduction strategies increase legibility and open societies and countries up to possible exploitation by people with totalitarian ambitions. I'm conscious that it comes across as a very paranoid objection, but I just wanted to get your reaction to that.

DK: Well, you're thinking bigger than I do. When I think of noise as a phenomenon, I think of it within a particular system where there is variability of opinions that really shouldn't exist and that is costly or damaging or that doesn't serve a purpose. And saying that you want certain kinds of judgments to be shared, that you want to reduce the noise of, say, in sentencing by judges or ... Those are narrow, specific objectives. I don't go as far as saying that if you control or reduce noise in some specific cases – because noise is always in a specific system, the way that we define it. That's thinking very big indeed, to think that noise reduction is going to cause those problems. We're not at the first stage of people recognising that noise is a serious problem. Before noise reduction becomes a serious societal problem, we've got a long way to go.

JW: Maybe that's an objection for a few decades. All right, I'll save it.

DK: Few decades of considerable success in noise reduction efforts, which I do not foresee.

JW: Right. Why are you pessimistic about noise reduction efforts?

DK: Well, I'm pessimistic about everything. Because noise reduction efforts, they're quite costly. They're costly when you have individuals doing things and following their intuition. They have a feeling that they're expressing themselves and the feeling of individuality and so on. And by emphasising that you want people to reach similar judgments, you're doing something, potentially, that people will resist. People don't like to admit that there is noise. The very existence of variability is surprising. And the essential thing about noise as I see it, the insight to me, was that each of us is in a bubble – that I think I see the world as it is, as I do, because that's the way it is. We have what late psychologist Lee Ross called naive realism. We see the world the way it is. And if I see the world the way it is, I expect you to see it in precisely the same way as I do. That turns out not to be the case. It turns out that the variability among people in how they see complex things is much bigger than any of them can see because each of them feels that they're seeing reality the way it is. That, to me, is the interesting problem of noise.

JW: We were talking earlier about the difficulty, if not impossibility, of forecasting the distant future. I want to try and tie that into this discussion of noise. In the book, you argue that in any organisation, in any specific context, there may actually be an optimal level of noise. You write that, 'Whenever the costs of noise reduction exceed its benefits, it should not be pursued.' I guess that raises an interesting question as to how we cope with uncertainty where it might be hard to quantify costs and benefits. Say, in an evolutionary system like entrepreneurship and start-ups or science or the common law – where there's benefit to noise because it generates variation which then can be selected – it's difficult, if not impossible, to know ex ante which variations will prove to be the most successful.

If I try to give a concrete example of this, maybe you

want to improve academia and so, take the awarding of academic grants. Maybe you want to introduce a rule to reduce noise in the judgments of who gets grants. A rule that says, 'You should award grants to researchers with lots of citations or whose ideas seem promising according to some other metric.' It's just really hard to know which ideas will turn out to be important. Doesn't this just collapse back into debate of how to quantify uncertainty?

DK: Well, in granting in particular, there are systems where a certain level of unpredictability is important. Scientific grants are a good example of that in the sense that we don't know what we don't know and some randomness could potentially be useful. At the same time, a lot of randomness makes the system radically unfair. The question is whether currently things are biased one way or the other way. Whether there's too much noise or not enough. I think there is too much noise in granting, but I agree that if you eliminated noise completely, if you had rigid rules about what gets granted, then society in the long run would lose quite a bit.

JW: I guess my question is maybe more specific than that. It's just like, 'How tractable is a cost benefit analysis when you're dealing with uncertainty?' If that's the framework for judging the optimal level of noise.

DK: I haven't thought much about this problem, so I don't have crystallised thoughts. The question is whether there is any sensible way of quantifying the costs and the benefits in a system like that. I don't know enough about how one would quantify success and how one would define the goals of the system. So, I wouldn't know how to do cost benefit analysis on noise reduction.

JW: I have just a few miscellaneous questions and then a final question. These are high-variance questions, some of them might provoke interesting answers, some of them maybe not. So you and I are similar in that we both finished high school at the age of 17. Do you think on average boys should actually finish a year later than normal rather than a year earlier?

DK: I've heard success stories both ways. It just reminds me of the fact that this may be dependent on culture and on time. When I grew up, rushing to adulthood was the norm. You were rushing to adulthood, you were rushing to financial independence. You had to take responsibility for your own life. And I look at my grandchildren, they have all the time in the world. And I think they are blessed because they feel protected and that gives them time and they feel safe. I think it's quite wonderful. I don't completely understand how they can be so patient because I wasn't at their age.

JW: As you know, Nassim Taleb argues that we underestimate tail risks. Does that contradict prospect theory?

DK: Well, no, I would say. In prospect theory, you overweight low probabilities, which is one way of compensating. Now, what Nassim says, and correctly, is, 'You can't tell – you really cannot estimate those tail probabilities.' And in general, it will turn out – it's not so much the probabilities, it's the consequences. The product of the probabilities and consequences turn out to be huge with tail events.

Prospect theory doesn't deal with those – with uncertainty about the outcomes. So, what Nassim describes, as I understand it, is you get those huge outcomes occasionally, very rarely, and they make an enormous difference. This is defined out of existence when you deal with prospect theory, which has specific probabilities and so forth. So, prospect theory is not a realistic description of how one would think in Taleb's world.

JW: I see. Does that diminish the descriptive validity of prospect theory?

DK: I don't think prospect theory is much descriptive. I think of it as a bunch of ideas. It's quite interesting when you look at the way formal theories like prospect theory play out. They are valuable for one or two ideas that actually travel well and get completely detached from the rest of theory. So, loss aversion is an idea, overweighting low probabilities is an idea, thinking of reference points and changes rather than final states, those are ideas. It turns out that in order to be able to state those ideas in a way that will influence thinking, you've got to pass a test. You've got to develop a formal theory that will impress mathematicians, that you know what you're doing. Constructing a theory – so far as I'm concerned, this is very iconoclastic, what I'm saying now – constructing a theory like prospect theory is a test of competence. Once you demonstrate competence, what makes the theory important is whether there are valuable ideas that can be detached from it completely. So it's not that the theory is valid. Some ideas are more or less useful, and that's the way I think about it.

JW: I see. Are there any subfields or results in psychology that have weathered the replication crisis so far but you think are very vulnerable?

DK: No, I can't think right now of any area. You know,

the thing that is most striking about the replicability crisis is how the field has responded. And it's extraordinary. I mean, the improvement and the tightening of standards that have occurred in the ten years, and it's exactly ten years since the crisis began. The way psychology is done, scientific psychology is done, has really changed top to bottom. It's a different field. And that's what's impressive to me. The field as a whole is much less vulnerable, I think, than it was to those kinds of mistakes.

JW: That's good to hear. My final question is you famously left the happiness literature. You realised that people are very confused when they talk about happiness and it just wasn't a particularly tractable problem to work on. Have you learned anything else about happiness and the experiencing and remembering selves since abandoning that project? What have you learned about the good life since then?

DK: I haven't completely abandoned that project. In fact, the latest paper I've done is an adversarial collaboration on happiness. I had a particular idea which turned out to be wrong, and then that's what happened. I had the idea that you want to measure emotional experience and that what people think about their life is not all that important. And I thought that this is a way of, maybe, redoing the happiness literature. Then I realised that the basic flaw in this is that people by this don't want to be happy. This is not what they really want. They really want to be satisfied with their life, they want to have a good story about their life. And at the same time, clearly, the quality of experience is relevant but I didn't know how to go on from there, and I was not impressed by the measurements that were available.

There was a lot of talk about 20 years ago of measuring wellbeing, and there has been a lot of improvement, but it has not been along the lines that I was thinking of then. I mean, I wanted to measure experience. In fact, what has taken hold is a definition of wellbeing in terms of like, satisfaction. There's a lot of progress in that field, especially in the UK. There are some very interesting things happening. This was one area where probably my pessimism was exaggerated. Better things have happened than I would have imagined 20 years ago.

JW: So how specifically have your views changed since then?

DK: Well, as I said before, they haven't changed all that much. I mean, I'm still interested in experience and I'm still interested in emotions, but what is happening is an actual movement towards having happiness as a criterion for social policy. I can see this developing, it's beginning. The key figure in this, I think, is somebody who's not as well known as he should be in the US. And that's my friend Lord Richard Layard. He is really the driving force behind the movement, especially in the UK, towards giving happiness measurement a role in policy that it hasn't had, using happiness for cost-benefit analysis. So, there are exciting ideas. There's a book by him and a colleague coming out within the next couple of months, which I expect will have a lot of impact.

JW: Awesome. I'll look out for it. Danny, thank you so much. It's been an honour.

DK: It's been a pleasure. You're a very good interviewer.

JW: Thank you.

The Joe Walker podcast

Published in 2023 and transcribed for The Podcast Reader.

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The Science of Better Sleep

Remember your dreams

GINA POE
THE KNOWLEDGE PROJECT, 2023

Interview by Shane Parrish

Shane Parrish: What is sleep and what is it for?

Gina Poe: It's not a waste of time. Your brain is very active while you're asleep. We know a lot about the functions of sleep right now, whereas even 30 years ago, we basically had very little idea. Or actually, rather, lots of ideas, but very little hard evidence that it was for anything in particular.

We know we can't do without it. That's the first thing. There's a biological condition called 'fatal familial insomnia', and that's where people develop an inability to fall asleep. And, unfortunately, it's fatal after a few months … It's a genetic problem, and people don't develop this until after childbearing years. That's helped us to realise that sleep is absolutely essential for life.

So, what do people die of when they don't get enough sleep? Well, it's unclear because it seems to affect multiple organ systems. It affects our brains, our metabolism, our skin, our immune system. So, what people die of are various things, depending on what it targets first in them, or what it targets worst in them. But in terms of getting sleep, it's for a lot of great things. It's good for our immune systems and all of our organs, including our brain. In our brain, it helps us to resolve emotions, to learn better, and to actually just clean our brain and restore the energy balance in our brain so that we can function well the next day.

SP: I want to go into resolving our emotions and cleaning our brain, but before we do that, how would you define sleep?

GP: Sleep is defined as an inattentive state where we are less attentive to the world around us. It's reversible, though, so we can definitely wake ourselves up, unlike being in a coma. We usually have a characteristic posture, and it's hemostatically regulated. So, if we don't get enough of it, our brains,

our bodies will demand more of it to make up for the sleep that we've lost.

We've recently discovered in the last five, six years, that sleep isn't necessarily a whole-brain-at-the-same-time phenomenon – that, in fact, some parts of our brain can be asleep, while other parts of our brain can be awake. That's probably what sleepwalking is about. We are unconscious, but we are awake enough to be able to interact with the world around us.

SP: Do you think that is evolutionary in nature, because we had to be on alert for predators and prey even while we're sleeping and resting?

GP: It could be. It's just as difficult to awaken a sleepwalker as it is someone who's fully asleep. So, I don't think it would be evolutionarily demanded. However, there are creatures, not humans, that can sleep one hemisphere at a time, where one hemisphere is awake, and the eye that is governed by that hemisphere is open and alert to the world, and the other eye is closed, and the hemisphere that governs that eye is asleep. So it's actually just fully awake and fully asleep. Someone asked once whether we could do that. And there is no evidence that we can, but certainly parts of our brain can be asleep while other parts are awake.

When our brain is asleep, the parts of our brain that are asleep, including in the hemispheric sleeping, are really asleep. And part of that is being inattentive to the world around us. We really need to be closed to the world around us in order for sleep to do its thing.

SP: Speaking of doing its thing, one of the things that you mentioned was resolving emotions and cleaning out our brain. Can you dive into those a little bit?

GP: So both of those have been long suspected to be functions of sleep, but only recently have we found evidence that this is the case. We all feel like our brain is gunked up when we're sleepy and we need to get to sleep. But it's only been in the past 10 years or so that we realised that there are slow waves actually sweeping through and cleaning our brains from the debris that builds up across wakefulness. Proteins get misfolded as they get used, and we need to refold them.

We also need to clear away the debris of metabolism. That happens through these slow waves sweeping through, almost like a bilge pump. I think of it like a bilge pump pumping out the waste. As far as emotional learning, we all realise that if we don't get enough sleep, we get cranky. And it's even more true of children who are developing; if they don't get their nap or don't get enough sleep, they get really hard to manage. But it's only been recently in the past 10 years or so that we've been able to see how that happens and mechanistically, what is actually happening to our emotions.

We still only have a lot of hypotheses. It's hard to study emotional systems, especially in animals that can't talk to us. We can see evidence of volatile emotions, but it's hard to get from mechanistic studies because animals have a difficult time telling us how they're feeling, unlike humans. And it's fairly problematic to deprive people of sleep too much, especially children where it's so obvious. We definitely don't want to deprive them of sleep because sleep is really important also for a lot of developmental steps that have critical time windows. And if you lose that sleep and that time window, you lose the opportunity to fully develop that part of the brain.

SP: We're talking about this as if this is a constant process happening throughout the night. But are there different states of sleep, or different things happening at different points of time in our sleep?

GP: There are three states of sleep, but people have characterised as many as seven sub-states of sleep that happen throughout the night. Typically, we have about a 90-minute cycle. On average, it's about 90 minutes where we go through all the stages of sleep. They start first with drowsiness, which is stage one, where we're being less attentive to the world and we start to have amnesia. If someone's talking to us while we're in this stage one of sleep, we might be able to hold a conversation, but we won't remember it. We could read a page if we're reading a book, but we won't remember what was said on that page.

Then we go into a deeper stage, which is stage two. And that is where we start to get sleep spindles, which are these 10- to 15-hertz blips … that come and go in different parts of our brains at different times, and these things called 'K-complexes', which are big surges of activity in our brains. And that's when we are definitely fully unconscious.

But if you wake up someone out of that state or they spontaneously awake out of that state, they will say that they have had hallucinations. Kind of like dreams, but not full dreams. They're called 'hypnogogic hallucinations', 'hypno' being sleep. That's where some of these hallucinations are quite vivid and scary sometimes. Waking up about 5 minutes after falling asleep, you can have what are reported as kind of a scary dream. That's not a full-fledged dream, but almost just a perceptual hallucination.

Then if we successfully go to the next stage of sleep, that's our deep, slow-wave sleep, where there's a slowing of our rhythms in our brain, and there are periods of silence that last about a hundred milliseconds or so, and then periods of high activity. But it's all synchronous throughout our brain. Synchrony is almost like white noise. It's just everything active at the same time. Everything's silent at the same time. It interrupts the communication that would happen between different areas of our brain. So that's a deeply unconscious state of the brain.

But it's also a state where if there are portions of your brain that are awake, you could do things like sleepwalking, sleep talking, sleep baking, sleep driving. It's pretty dangerous in the sense that you don't really know what you're doing. There have been legal cases where people have been acquitted of a crime because it could be shown pretty clearly that they were asleep at the time. After that, we transition back to the N2 stage of sleep, and that transition on the way to rapid-eye-movement sleep, which is the dream state, is called the transition to REM sleep. And that's where really interesting things start happening. We start having more vivid dreams that have a little more content to them. But it's not until we transition to full-fledged REM sleep that we have our full-fledged long, involved, crazy dreams.

But in that N2 state, again, we have those sleep spindles and those K-complexes. And those seem to be really important for helping to consolidate our memories and update our schema with the things that we learned the day before. It's just a very plastic time in our brain, and it's the opposite stage of wakefulness in the sense that all of the neurotransmitters that are high when we're involved in interacting with our world are low, and neurotransmitters, being the neurochemicals in our brain, are really low during that N2 transition to REM.

Our thalamus, which is our gateway to consciousness – where all the outside information gets sorted and put into various parts of our cortex so we can respond normally and rationally to it – is completely closed. That thalamic gate is closed during that N2 transition to REM. So, it's actually in some sense the deepest stage of sleep. We are least awake in that state.

Then we go into REM sleep, which is paradoxical. Often it's called 'paradoxical sleep' because our cortex looks like we're awake. Our cortex looks like it's responding to the world around us, only it's not because our gate is still closed, and instead, our cortex is responding to internally generated cues. So instead of excitation coming from the outside world, excitation is driven inside. It's thought to be random,

> "... sleep isn't necessarily a whole-brain-at-the-same-time phenomenon – that, in fact, some parts of our brain can be asleep, while other parts of our brain can be awake."

and that's maybe the source of the randomness of our dreams. But in fact, it may not be random at all. It might be quite directed to the functions that REM sleep dream is trying to accomplish.

SP: I have so many questions. One of the things you said is if you wake up right away after you go to sleep, I know that happens to quite a few people, sometimes they fall asleep with no problem, and but sometimes they'll wake up 5 to 8 minutes later and they can't go back to sleep.

GP: That's really interesting. Well, it might be if you have a really efficient N2-stage sleep, you might be able to accomplish some of the functions of sleep, including restoring some of the energy packets of ATP that get depleted across wakefulness.

I wouldn't worry about not being able to go back to sleep, because in fact, I think some of that function of sleep has already been accomplished. And that's good. Even some of the memory functions of sleep and creativity functions of sleep could have been accomplished even in that short period of time. However, the deep-cleaning portion of sleep cannot happen within that period of time, nor can the refined remodeling of REM sleep...

So don't think you can just get away with eight minutes of sleep and be fine for the next day. You do need to still clean your brain and do some refined work and the emotional work of REM sleep. So don't

worry, but also don't give up on getting a full night.
SP: Should we get out of bed if that's the case? I think it's normal for most people to wake up at least once during the night, whether they're even conscious of it or not, whether they go pee. Or some people often wake up at 2.00 or 3.00 am and can't go back to sleep for a little bit. What should people do when that happens? Not beat themselves up, I guess, but...

GP: Definitely don't beat yourself up or get anxious about it because anxiety will inhibit your ability to go back to sleep. Trust your body. If your body's saying, 'Hey, I really need to get this one thing done before I go back to sleep; I'm not going to feel good unless I get this one thing done,' get up and do it. Just do it, and then go back to sleep. You'll feel better, you'll feel less anxious, and that will help you go back to sleep.
If you're lying there worrying and there's nothing that can be done about it, or at least not done at that time, if it actually requires you to go into work to do this thing that you're worrying about, or call someone and it's the middle of the night and you can't talk to them, instead, try and write a list to help yourself feel more ready to accomplish that thing the next day.

Or meditate; deep breathe. Try and put yourself back into a place where you are happy and relaxed. For some people, maybe it just requires distraction, maybe playing a mindless video game on your phone with your blue light off. You need to turn down that blue light because that's a circadian-clock resetting signal that you don't want. I play Threes on my phone. I don't know if you've ever seen Threes. You put blocks together to form three, and then you put threes together to form six. There are no high stakes in it. It's just enough to occupy my mind so I'm not thinking about other things, but it's not exciting enough to wake me up, and I just fall asleep beautifully on that.

SP: One of the things you said led me to believe that we dream every night. Why is it that some people can remember their dreams, and some people, like me, rarely remember what they're dreaming?

GP: I think it's actually a good sign to not remember your dream. To me, it means that your whole brain was asleep and doing what it should be doing, which is not recording new memories, but rather processing old memories. Don't worry about it. Maybe it's a bummer that you don't remember these crazy dreams that other people come up with and that seem so entertaining. But it's probably a really good sign that your sleep is efficient and healthy.

But for those who remember their dreams all the time, also I'd say don't worry about it. We don't really know the answer to this, again, because we can't ask animals to recount their dreams to us. But what it probably means, and this is something that we just discovered 6 years ago in animals, and just last year we published papers about, in humans. It's possible that the hippocampus, which is your new-memory writing structure, kind of like a thumb drive, is not very well-connected to the rest of your brain during REM sleep. But it might be that it's better connected in people who remember their dreams, and it's functioning to record those dreams such that you remember them when you wake up. So is it good or bad that the hippocampus is better or worse connected with the rest of your brain? We don't know the answer to that. So that remains to be seen.

SP: You mentioned kids and sleeping and brain development. I think our brains develop until 22 to 25-ish years old. So as a parent of two teenagers, what does this mean for me as a parent? Do I wake them up on the weekend? Do I let them sleep until 2.00 pm? What do I do to encourage brain development? My mum used to wake me up at 7.00 am with a vacuum cleaner.

GP: I love that. My husband is a physician, and people would come to him with that question. Really, it's not a problem with the teenager. The teenager should sleep. They need that sleep for that brain development.

It's a problem with parents that we don't like it when our teenagers sleep in so late. And it's a problem with school schedules, too. Schools are not set up to allow teenagers to listen to their own biological rhythm. Children have a very strong circadian clock, and it helps them wake up in the morning. It also helps them go to sleep nicely at night. Teenagers have a circadian clock, of course, and it's much better than the circadian clock of older people. But they have many other things that their brains and bodies are attending to besides that clock, which tends to push their bedtimes later. Yet they need just as much sleep as a 12-year-old because of all the brain development that's still going on.

So that combination of later bedtime and needing enough sleep and not having a circadian clock that's quite as strong as a child's allows them to sleep in and get the sleep that they need. They also need more REM sleep. There's a lot of emotional processing, and that happens mostly during that REM sleep stage. So teenagers who are able to get an extra hour of sleep every night are usually able to better cope with the world around them, including their parents. They're happier, less depressed, less anxious, better able to cope with the social pressures of school.

I say if it were me, let them sleep. But my husband, as a physician helping parents treat their teenagers, and also as a circadian rhythms person himself, says, 'Wake them up.' So, I think either way, as long as they're able to get to sleep at a decent time at night, it's fine.

And one of the things that allows a teenager to get to sleep earlier than later is to not have all the electronics, and Facebook, and whatever it is that's keeping them engaged, really actively engaged. Make it boring for them at night, if possible, so that they have less social emotional reasons to stay up. And part of that is also for parents to go to sleep at an early time. It's hard for a teenager, who is so very attuned to the world around them, to be able to go to sleep when stuff is happening in the house. So it's helpful for parents to make it boring enough that teenagers can fall asleep at a decent hour.

SP: It sounds like no electronics maybe in the bedroom, if you can get away with that as a parent, might be a good idea...

GP: Absolutely. It's been shown in study after study that teenagers that have electronics far from them, outside the room, have much better social emotional performance.

> "It's been shown in study after study that teenagers that have electronics far from them, outside the room, have much better social emotional performance."

SP: What have you seen work there? What's effective? Leave your device in the kitchen?

GP: Leave your device in the kitchen, charging. Put the only chargers in the house outside of bedrooms.

SP: Talk to me about the importance of routine and timing of sleep. How important are the two to three hours leading up to sleep, and the consistency around times we go to bed and how that impacts us?

GP: There have been studies to show that the more volatile your sleep onset time, the worse the cognitive outcomes for older people. It hasn't really been studied as much in younger people. But if you have a regular bedtime, in older people, it's predictive of better cognitive outcomes.

Two things control our sleep. One is our homeostatic need, which is the longer you're awake, the more you need sleep. And the other is the circadian clock timing of it. So, one thing that helps you to have a good, solid, even circadian clock is in the morning when you wake up, expose yourself to bright light. Because bright light, especially in the blue frequency, is the strongest resetter of our daily clock. That starts the clock at the right time of day so that you're ready to go to sleep at night.

The circadian clock's drive for wakefulness starts relaxing at night, at the same time that the homeostatic need for sleep builds. So that allows you to go to sleep at the right time. If you expose yourself to really bright light in the evening, for example, with an electronic device with lots of blue in the frequency of light, you are setting your clock to say, 'It's time to wake up.' And so then your homeostatic need for sleep and your circadian rhythm are fighting one another. So there are lots of things that set your circadian clock besides light. Timing of meals, timing of exercise. All of that can help you know what time it is so you know what time to go to sleep.

In terms of what you should do before you go to bed to maximise your ability to go to sleep, you also have your autonomic nervous system, one part of which is fight-or-flight, which is your sympathetic nervous system, and rest-and-digest, which is an easy way to say your autonomic parasympathetic system. The parasympathetic system dominates, as it should, during sleep, rest-and-digest. So anything that riles up your sympathetic nervous system, the opposite one, is not something you want to be doing right before bedtime.

Photograph: Gregory Pappas

SP: What does before bedtime mean, though? Is that the preceding 30 minutes, 90 minutes, 2 hours? Is there a time ascribed to that?

GP: I think that varies by individual. For example, I know some people who take a very cold bath, and then they take a hot shower just to warm up so they're not freezing anymore, and then they get into bed. What that cold bath does is that it activates your sympathetic nervous system. You're very aroused. You're very alert and awake during that cold bath. But it works almost like a reset of your sympathetic system. It's like a big button push that allows a parasympathetic rebound when that stressor is over. So within 30 minutes, once they've warmed up a little bit, they feel so much more able to get a good night's rest. And there's some evidence that the sleep that they get is really good sleep. For me, that doesn't work. It's so stressful to me that it takes me too long to relax after that. But a warm bath is perfect because that's helping the parasympathetic system do what it does.

SP: It sounds like consistency is key. Correct me if I'm wrong here, but everything you're doing during the day is telling your cells what time of day it is. So you're influencing your circadian clock in your head, whether you have coffee, whether you're eating late or playing video games or whatever; you're sending it signals. And so it sounds like consistency is key. Also, if you are consistent, I'm assuming it also talks to your subconscious about 'It's a bath; that means we're cueing our bedtime wind-down routine...'

GP: Yes, we are creatures of habit. It might not just be our conscious mind, but the rest of our body that's also paying attention to that habit and helping us wind down and get sleep. So yes.

SP: What sorts of things can we do to make our sleep more efficient and maybe encourage more REM sleep? Because you seem to think that that is one of the most valuable parts of sleep.

GP: Actually, one of the things that we don't know yet is whether quantity is equivalent to quality. And so more is not necessarily better. In fact, there are some sleep disorders where people have hypersomnolence or too much REM or REM too early in the night. So, it's also the timing relationship between the sleep states that seems to be important.

If you are learning something or have an emotional day, you will get more REM sleep. It's homeostatic;

it's automatic; you don't need to worry about it; you'll get it. Your body will get it if it needs it. And so, if you're learning a lot and you need more REM sleep to consolidate that, you will get more REM sleep at the cost of other states of sleep. If you can just sleep longer, then those other states of sleep don't have to suffer in addition to it. In the first half of the night, you get more of that deep, slow-wave, cleaning sleep. And in the second half of the night, toward the wee hours of the morning, you get more REM sleep.

So I said on average, you go through all the states of sleep within 90 minutes. But in fact, in the first half of the night, more of that 90 minutes is spent in deep, slow-wave sleep and less in REM sleep. And in the second half of the night, more of that 90 minutes is spent in REM sleep and less in deep, slow-wave sleep. If you go to bed too late, you'll actually miss the window for that deep, slow-wave, brain-cleaning sleep. And the sleep you'll get is more REM sleep. If you wake up too early – you go to bed at the normal time but wake up too early – you'll be missing a lot of your REM sleep. So, you might be fine in terms of brain cleaning, but you will not have done all the memory consolidation and emotional resolution stuff.

SP: That's fascinating. So, we don't just catch up if we go to bed later. We sort of miss our window because it's almost like programmatically, our brain starts to do a function at a certain time, and if we're not asleep at that time, we're not getting it, even if we shift our time.

GP: Right. But don't fear; don't worry. If you miss a night's sleep, or one night you just can't get to bed at the regular time, the next night you will probably be sleepier earlier. If you can go to sleep a little bit earlier, you will catch up on that deep, slow-wave sleep that you missed the night before. And also, the slow waves become bigger and more efficient, and so your brain will do its best to make up for that lost sleep.

SP: It'll adjust, knowing that you didn't get some last night, and so we need to get extra tonight. That's fascinating.

GP: There are limits. There are limits to that homeostatic ability to adjust, unfortunately. We can't just not sleep for a week, and then sleep regularly the next week and just have more efficient sleep and make up for it. That's not the way it works. You will actually suffer.

And one of the things that suffers – and we don't know how it adjusts – is our immune system. That's something that is able to also learn through sleep. For example, if you get a vaccine one day and then go partying that night and drink a lot of alcohol, get to sleep late, and then that sleep is also influenced by that alcohol, so you don't get all the stages and all the quality of sleep, that immunisation will be at least 50 per cent less effective than it would otherwise be. You can't make up for that by just getting more sleep the next night. There's a window of time you need to get that sleep for that vaccination to have its effect.

SP: So [there are] a couple rabbit holes I want to explore there, one of which is: what else do we know about the sleep immunity response connection?

GP: There are a couple of great researchers. Mark Opp is one of them. He's at the University of Colorado Boulder. And Jim Krueger, he's at Washington State University. They've done a lot of really good studies to show that our immune system is definitely compromised. The first thing that happens with no sleep one night is that our natural killer cells get upregulated, because it's a highly stressful situation for our bodies not to get a night's sleep. So our immune system goes on high alert and says, 'What's going on? What do we need to pay attention to?' That helps protect us from any kind of acute insults that day. But it also makes us unable to learn from those things, learn from whatever immune challenges you had during that day. If you're exposed to a virus, for example, you aren't as able to rally your soldiers, your immune soldiers, to fight that virus. You will not be able to generate the specific soldiers to fight that specific virus, and so you'll be more likely to get sick.

SP: Why do we sleep more when we're sick, or tend to?

GP: There are some good studies which show that the immune response actually signals our brain that we need more sleep. It's kind of unknown exactly what's going on and why your body needs more sleep. But if you deprive someone of sleep at the time that they're fighting an infection, they will not get better nearly as quickly.

So it's super problematic in a hospital when someone's there for a viral or bacterial illness, something the immune system would need to fight, and the hospital procedures, the beeping sounds, the checks on you, the blood pressure checks, etc., keep you awake or awaken you many times and prevent you from getting into that deep, slow-wave sleep state. It seems to be slow-wave sleep that's especially important for the immune system. If a hospital environment disallows good-quality sleep, they're actually hurting their patients' chance of getting better as quickly as they otherwise could.

SP: Are there studies on that where certain hospitals take sleep more seriously for their patients, and therefore we could expect them to have better outcomes?

GP: There have been hospitals, thankfully, who have taken sleep more seriously and only interrupt patiesnt when it's critical for their life. I don't know of any studies on whether or not patients do better. I would imagine for sure if someone did study it, they would find that to be the case.

One thing that has been studied, though, is whether hospitals take more seriously the sleep of their physicians and nurses and staff. If the schedule of the hospital allows for physicians and nurses and staff to get good regular sleep, then the physicians and nurses make fewer medical errors. That includes errors in terms of misprescribing something for patients, as well as errors that affect their own health, like accidental needle sticks in themselves. So, judgment and decision making improve and the number of accidents goes way down if your physician is well slept.

SP: Do we know of any link between nutrition and the quality of our sleep? It seems like everything often comes down to what we eat and how we sleep. I'm wondering if there's a connection between the two of those things.

GP: I think that is a brand new field that we haven't done enough research on. It was really very recently that we realised that the enteric nervous system, our whole gut nervous system, is as intelligent and influential in terms of our health as our brain is. So it's not a separate nervous system. They're connected, but they're disconnected enough such that our brain is not really consciously aware of the same things our gut is aware of.

It's a really good question. We do know that our microbiome, our biome, generates neurotransmitters that affect our brain. And some of those neurotransmitters are really important to either be present or absent during sleep. So the thing we mentioned earlier, which is having a big meal just before you go to sleep, having our whole gut work, whereas normally it should be resting, might also be generating neurotransmitters that shouldn't be there when we're asleep, and could make our sleep less efficient.

There's some conflicting evidence. One says having a big meal makes people have more nightmares, more disturbing dreams that they remember. That probably is because they're awakening out of sleep more often in order to have the consciousness of those disturbing dreams and nightmares. But there have also been studies in babies and in infant rats showing that a belly full of warm milk is the best thing for REM sleep. So it might have to do with the complexity of the meal that we've had or how close to bedtime, and whether or not we're an infant.

SP: You mentioned the different parts of sleep at different times. I was forced to choose, do I go to bed late or do I get up early, how would you think about that choice?

GP: Well, I'm a night owl myself, so I would like to go to bed late. But in fact, if I had to choose rationally, it would be getting up early because we do get REM sleep in the first half of the night, and that REM sleep is really important. That REM sleep we get in the first half of the night is really important for learning and memory as well. I would say don't do either. Get your full night's sleep.

SP: How long should it take to fall asleep ideally?

GP: Someone who's getting enough sleep at night takes, on average, 14, 15 minutes, to fall asleep. If it's taking you 45 minutes, that's too long. That means that you're not trying to fall asleep in the right window of time or that you are stressing about something. Or maybe it just means you've had too much caffeine during the day, too late in the day, and that's still working on your brain to prevent that signal, that homeostatic drive signal from hitting your brain.

One of the most effective ways to help people with that kind of insomnia, that delayed-sleep-onset insomnia, is to get out of bed. Do something that relaxes you and makes you happy. And then when you're feeling sleepy again, just hit bed. Don't worry about having lost that 45 minutes, because in fact, you probably would've been awake in bed during that period of time, worrying about it anyway. So get up; do something useful and not too exciting. And that's called 'cognitive behavioural therapy' for insomnia. That's one of the recommendations of it.

SP: And it seems super effective. I've had some friends do that, and it takes three or four nights, and then it seems to work really well. You mentioned falling asleep later. What about instead of 45 minutes or instead of 15 minutes, it takes you 2 minutes to fall asleep? What is that?

GP: That's not good for you. A lot of people feel like, 'It takes me two minutes and it's great.' It's usually a sign that someone's not getting enough sleep. That homeostatic drive is super, super strong.

> “It was really very recently that we realised that the enteric nervous system, our whole gut nervous system, is as intelligent and influential in terms of our health as our brain is. So it’s not a separate nervous system. They’re connected...”

Actually, people are famously bad at knowing how long it takes them to get to sleep because our memory systems – this is a paper we published last year – our memory system is the first thing normally to fall asleep. So you might not actually be fully asleep. It might be just that your memory system has fallen asleep in two minutes, but in actuality, if you looked at the whole brain, it looks like it’s 10 minutes or something like that.

However, if you really are asleep in 2 minutes, like you have a bed partner and they’re snoring in 2 minutes’ time after their head hits the pillow, it’s probably a sign that they’re not getting enough sleep. Also, snoring is something to be cautious of as well because it could indicate inefficient sleep caused by sleep apnea. Which is really, really bad for everything that sleep is good for.

SP: What about alcohol and caffeine and their effect on our sleep, and the windows in which they don’t affect sleep as much? I think the half-life of caffeine is 6 hours. I don’t know what the half-life of alcohol is.

GP: I don’t know what the half-life of alcohol is either, but I wouldn’t doubt it’s 6–8 hours, something like that. So the half-life of caffeine, it’s not a half-life of the caffeine molecule itself. It’s a half-life of our ability, our enzymes’ ability to break it down. And that varies from person to person.

For me, it’s a half-life of more like 16 hours. Whatever enzymes I have, they’re just ineffective. So, if I have caffeine after noon, I am awake until 1.00, 2.00 in the morning – my brain is just whirling. But there are other people who have a very efficient caffeine enzyme and they can have a cup of coffee at dinner and still sleep great. So, I think it really depends on the individual, and you need to find whatever’s right for you.

Alcohol definitely disturbs your sleep. It may make you feel like you can fall asleep better, and a lot of people self-medicate with alcohol before bed. But in fact, even though it helps you fall into that first stage of sleep, your sleep is not as good or efficient, and it actually inhibits REM sleep as long as it’s on board.

Interestingly, the metabolism of alcohol sends an arousing and alerting message to your brain. So a lot of people, if they’re drunk and they fall asleep, they will wake up at 3.00, 4:.0 in the morning and find it difficult to go back to sleep because that alcohol is burned off and that alerting, arousing signal has come in. I don’t know what that arousing signal is. I haven’t looked into it myself.

SP: That’s fascinating because there’s a cohort of people I know amongst my friends and other people who wake up at 3.00 to 4.00 in the morning and then can’t go back to sleep. And I’m wondering to what degree that correlates to having a few glasses of wine or a beer or something the night before and your body’s metabolising it. And then that’s part of what’s either waking you up or keeping you up if you naturally waked up to pee or something.

GP: It could very well be that.

SP: You told me before we started recording that science is way more exciting than it looks on TV. Can you expand on that?

GP: I did not think I wanted to be a scientist because I thought that what I saw on TV was either the nutty professor, where it’s someone who’s completely socially inept, or it was Einstein. It was only for true geniuses. And it was for people who didn’t mind being loners and just sitting, thinking and pipetting alone at a bench.

You see pictures of scientists, you see them always alone, right? You very rarely see them in groups.

In fact, science is an extremely social enterprise. We really build off one another's findings and ideas. There's a lot of brainstorming that's a lot of fun. Conferences are amazing. I just came back from a learning and memory conference in Huntington Beach this past week. To hear what other people are doing generates so many more ideas in your own brain about what you could do next. Hearing about the techniques that they utilise, you can start employing them. People will come help you utilise them in your own laboratory. You can go help them.

Right now, the pace of science is so mind-blowingly fast that it's almost the case that no matter what experiment you can think of, you can figure out a really good way to approach it with the tools that we have now, and that we can share with each other.

SP: When it comes to anything really, our hypotheses and our results are only as good as our tool's ability to measure. With the brain and sleep, it feels like we're looking at it from a mile away because nobody wants to let us drill into their heads while they sleep. It'll be interesting to see how that develops over the next 10 or 15 years. Where are we on the right track, and where are we totally wrong? And on that note, you have a lot of up and down ideas, right? You have a hypothesis; you test it; you discover something completely different. I wonder if you can talk to me about some of that journey.

GP: Absolutely. That's really the fun of science. Neuroscience is like building a giant puzzle that's really difficult, but really rewarding. So every paper that we publish is just one piece of that puzzle. And we don't always know, when we come up with a piece, where it fits in the bigger picture.

We actually sometimes think that it fits with this other thing. I don't know if you've ever built a puzzle before, but sometimes you think, 'These two go together.' And they don't quite fit, but you think, 'They've got to fit.' And it's not until you have more pieces of the puzzle that you realise, 'Oh no, this other piece goes there. And that one actually still doesn't belong anywhere. But eventually, we're going to find the use for it.' So it's not like anything that we come up with, if we have rigorous approaches to it, is wrong. It's just that we don't always know where things fit.

Sometimes papers get published and not cited, and they are considered low-impact papers because for 20 years, no one knows what to do with that knowledge. But the good thing about publications and a record is that they are sitting there and someday someone will say, 'Well, what about that?' And they'll find that paper and say, 'That fits perfectly with this portion of the puzzle that I'm building.' For me personally, the way I've come up with some discoveries is because I had a hypothesis that was completely wrong.

> "In fact, science is an extremely social enterprise. We really build off one another's findings and ideas. There's a lot of brainstorming that's a lot of fun. Conferences are amazing. [...] To hear what other people are doing generates so many more ideas in your own brain about what you could do next."

SP: I love the idea of adapting to the data and being open to it in terms of 'I thought this, but now it's this' and changing your mind. How do you approach things with that mentality where it's easy to change your mind?

GP: Well, first of all, you have to put your ego to bed because we're all going to be wrong. If we are striving and hot on the trail of something that's real, we have to be open to the fact that we can be wrong and that our hypothesis will always be too simple because our brains are complex. That's one thing that everybody agrees on. And so our hypotheses about how it must work have to embrace that complexity. Putting our egos to bed is the first thing to do.

Photograph: Alina Grubnyak

SP: Perfect. The last question I want to ask you is, what is success to you? How do you think about that?

GP: A happy life is one where you can brighten the corner where you are, whatever you're doing. I might not have been a scientist had I not happened to have a couple of experiences that showed me that science wasn't as boring as it looked on TV. I'm really glad that I'm able to do science. But if I had not been a scientist, I'm sure I would've enjoyed my life doing something else. Right?

I think success is to be able to be useful in making the world a better place, no matter what you're doing. And for me, the thing that excites me, that makes me the happiest probably, the thing that makes me jump up and down is when I'm able to put two pieces of the puzzle together that seem to actually fit and come up with some answer.

I know that I myself am not going to be able to do a huge portion of this huge puzzle, but I'm really glad that I have colleagues that are working on it, too, that are also smart and also excited, and can tell me about what they're doing so that we can all together as a community solve this really important thing, which is how our brains work and how we can make them work better in cases when they're not working as well.

SP: That's beautiful. I love that you said – I believe in this as well – 'being useful towards making the world a better place.' I think that's a beautiful way to end this. Thank you so much, Gina.

GP: Thank you, Shane. It's been a pleasure talking with you.

The Knowledge Project

Published in 2023 and transcribed for The Podcast Reader.

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On Marketing, Art and Meaning

The stories we tell each other

SETH GODIN
CONVERSATIONS WITH TYLER, 2023

Interview by Tyler Cowan

TYLER Cowen: I am chatting with Seth Godin, who has a new book out, *The Song of Significance*. Usually, I make up introductions for guests, but the one for Seth on his book is so good already:

'Seth Godin is the author of twenty-one international bestsellers that have changed the way people think about work. His books have been translated into thirty-eight languages. Godin writes one of the most popular marketing blogs in the world, and two of his TED Talks are among the most popular of all time. He is the founder of the altMBA, the social media pioneer Squidoo, and Yoyodyne, one of the first internet companies. Find out more at seths.blog.'
Seth, welcome.

Seth Godin: What a treat. Thank you for having me.

TC: I have so many questions about marketing. Let me start with one. Why is it that direct mail works at all?

SG: Why do people want things? They want things, first, because they need them, but then we have trained them to want them. That feeling of 'I don't have something, but I want it, and wanting it will make me happier' has been indoctrinated into us for a long time. The magic of direct mail–which is 150 or so years old–is that stamps create scarcity. If somebody sends you a piece of direct mail, it costs them something to do that. That's different than email spam, which costs us nothing.

So, for a long time– all the way back to the beginning of pottery with Wedgewood–we have people sending letters to the *right* people–because they can't send it to everyone–interrupting them in a culturally appropriate way to sell them something that will give them satisfaction. Unfortunately, there's also a race to the bottom, and you get a lot of junk. It's the junk that people don't like. Marketing that they like, people don't call junk.


PERFECT

> “
> … professional sports in any country that are beloved, are beloved because they remind us of our parents. They remind us of a different time in our lives. They are comfortable but also challenging.
> ”

TC: Most of the direct mail that comes to our house is people wanting money for free. Why should I give money to someone I don't know, rather than money to someone I do know? If personal affiliation is a goal and trust matters, why direct mail?

SG: Well, first, I'm not an expert on direct mail, though I am lucky enough to be in the Direct Marketing Hall of Fame. They kicked me out of the Direct Marketing Association for my stance against spam a long time ago. But I guess what I would say is this: we have developed a culture where it is accepted and expected that the recipient will guard their attention and guard their pocketbook. I don't think that that's the only way the world could work, but it is the way our world works. I'm not saying it's right, but it is the way it is. So, no, don't send money to someone you don't know.

TC: To what extent is being good at marketing the same as being good at telling very short stories?

SG: What's a story? A story isn't always *The Princess Bride*. A story isn't always once upon a time. A story is the way it smells when you walk into your mother's house and you smell apple pie, because you have a Proustian connection to how that felt a long time ago. A story involves status and affiliation. It's very complicated. I'm not ready to say that marketing is a short story. I think that marketing is a complicated story.

We know the difference from a thousand clues between a $500-a-night hotel and a $40-a-night hotel, even though both rooms are dark and quiet in the middle of the night. We want those things. Those stories inform our lives. They are why we bought the eyeglasses we bought and why we drive the car we drive. There are people who believe that a utilitarian sort of Soviet mindset is better, but even that person is driving their 25-year-old Pontiac because the story they tell themselves about that car makes them feel better.

TC: How do you think about the cross-sectional variation between very short stories–Coke, 'the real thing'–and then very long stories? A piece of direct mail might be very long. The later Harry Potter novels–they're very long. They're, in a sense, ads for the sequel in addition to everything else. When do you go long and when do you go short?

SG: I think there's a confusion here between the surface of a jingle or the noise we hear and what marketing actually is. Coke's story is not a jingle. It is not 'the real thing.' Coke's story is *so* complicated and *so* expensive that when they changed the formula of Coke, it cost them billions of dollars, even though testing in a blind test showed almost everyone thought it tasted better. The thing is, we don't live in a double-blind world. We live with a narrative that informs us.

When someone shows up to tell a story–and it's not just someone who's trying to sell you a soft drink; it's someone who's trying to run for office or an economist who's trying to get people to adopt her ideas–they are telling a very complicated story that involves everything from how is the typeface kerned to what institution is this person part of, to what do my friends think of them? For me, marketing is humanity. They're right next to each other. It is the stories we tell each other about who we are and where we belong.

TC: I have some case studies to ask you about. Feel free to pass if you don't know anything about them. To start, what has Trader Joe's gotten right?

SG: Trader Joe's took the rule of the supermarket and found a different fraction, which is instead of being *super*–meaning, let's sell everything to everyone, average stuff for average people at the

Photograph: Alessandro D'Antonio

fairest price we can–let's remove almost all variety and, instead, create a place where the products themselves are unique enough *in* their stories that people who identify with that relationship with food and shopping will come here, even though they have to drive past five other supermarkets to get here. Every other supermarket is interchangeable. Trader Joe's is not.

TC: What has Whole Foods gotten wrong by comparison?

SG: Well, at the beginning, John and the team did something extraordinary, which is they took the mom-and-pop health food store and multiplied it and added the shiny veneer of luxury goods. Since Amazon has taken it over, I think what we've seen is, they're not exactly sure what they are measuring. Are they measuring convenience? Which is what Amazon wants to stand for. Or are they measuring uniqueness? Or are they measuring creating surprise and delight? They alternate between all four of those things. One of the things that happens when you try to build and grow an institution is, it really helps to understand who's it for and what's it for. What is the change we are trying to make? I think they'll muddle their way through, but it's going to take leadership to figure out, what does Whole Foods do, actually?

TC: Taylor Swift is pretty popular. Obviously, people like the music, but what else is she getting right?

SG: I'm not an expert on pop music, but what I will tell you about pop is, someone needs to be Taylor Swift. It's a mistake to reverse engineer whoever is on top of the pop chart and say, 'If I was just like that, I would be next.' Because the definition of pop is, we all picked someone, and she has a lot of skill and works really hard. But you can't reverse engineer it to figure out the next one.

TC: If you were called in as a consultant to professional baseball, what would you tell them to do to keep the game alive?

SG: [laughs] I am so glad I never was a consultant.

What is baseball? In most of the world, no one wants to watch one minute of baseball. Why do we want to watch baseball? Why do the songs and the Cracker Jack and the sounds matter to some people and not to others? The answer is that professional sports in any country that are beloved, are beloved because they remind us of our parents. They remind us of a different time in our lives. They are comfortable but also challenging. They let us exchange status roles in a safe way without extraordinary division.

Baseball *was* that for a very long time, but then things changed. One of the things that changed is that football was built for television and baseball is not. By leaning into television, which completely terraformed American society for 40 years, football advanced in a

lot of ways. Baseball is in a jam because, on one hand, like Coke and New Coke, you need to remind people of the old days. On the other hand, people have too many choices now.

There's a baseball team called the Bananas. It's like the Harlem Globetrotters for baseball, and they sell out every single game. People wait in line to get in, and they create this extraordinary family experience built on top of baseball. It reminds us of baseball, but it isn't baseball. I'm not sure all of Major League Baseball can do that, but I think the useful lesson is not how do we fix baseball? It's how do we think about which story do we want to tell next?

TC: If you think about the problems of Peloton, which did incredibly well during the pandemic but now has had a very steep fall, is that just a product problem? Or is there something in their marketing that they could be doing better?

SG: Peloton had some really significant advantages when they figured out that they could embrace the idea that people want to measure themselves. They want to compete against people they don't know, and they want to see their metrics go up. Then the pandemic gave them a huge boost because you *couldn't* go to the gym.

What many institutions and organisations confuse is the convenience and luck of being in the right place at the right time with building something for the ages. Peloton's challenge cannot be remedied by fixing a device or coming up with a jingle. What they have to realise is, anything that succeeds and sticks around does so because it answers the question, 'What will I tell my friends?' During the pandemic, it was easy to talk to your friends about this thing that they could do to get themselves out of their malaise. But now, Peloton is not giving people a good reason to tell their friends, which means it's not going to grow, and it's easier to quit or have it fade away because you don't feel missed when you're not there. Institutions that last, like Alcoholics Anonymous, stick around for those two reasons: You will be missed if you're not there, and you know what to tell your friends.

TC: Which brand is doing a better job marketing, a Prius or a Tesla?

SG: Both of them have stories that have problems right now because, as the trends shift, Toyota finds itself behind because they bet on different alternative fuels than electricity, and Tesla because their founder hoards attention. The challenge when you buy a car is that you know you're going to send a message to everybody as you drive around town. That is what has driven the car industry since they figured out how to make decent cars 50 years ago. If that's the case, the job of a car company is to live and breathe and model the story that the customers want to tell as they drive around. A lot of car heads will say, 'No, no, no, I just buy the best car.' And I would say to them, 'No, you buy the car that tells your story the best way possible.'

> "... anything that succeeds and sticks around does so because it answers the question, 'What will I tell my friends?'"

TC: As you know, ChatGPT is sometimes described as the most rapidly growing or most rapidly adopted consumer product ever. As with Taylor Swift, people must like it, but in terms of marketing, how do you think about what they've been doing? They don't seem like a marketing company, right? It's a bunch of engineers.

SG: There are so many things to talk about with ChatGPT. I would first say, I'm not sure people like it. I think people are fascinated by it. They are afraid of it. They're curious about it. But there are things people *like* that deserve that word. ChatGPT is on the forefront of what many people believe is going to be our future, and so it's worth touching and playing with. ChatGPT became a marketing problem, not a technology problem, the day they decided to open the beta to more than a few thousand people.

The same way – and I'm sure you remember this – when Google came along (I was at Yahoo at the time), if you took Google results and results from Bing or Yahoo, and just switched the logos at the top, people would say they prefer the Google results, even when they were looking at the Microsoft results, because Google didn't have a technology problem. They had solved a marketing problem, which is that Marissa Mayer figured out that by taking off 180 links on the homepage, the way that Yahoo had 183 links, and just taking it down to two, they sent a message.

When you think about how people use ChatGPT, one of the brilliant things they did was, when we first started using it, it typed slowly. It didn't just sit there waiting until it had the whole sentence figured out. It typed a few words, then it typed a few more words, then it typed a few more words. There was no technical reason for that. That was a marketing decision because it made us imagine that there was a little man or woman inside the thing typing back to us. They *intentionally* created personification.

TC: How happy are you with your own bot of you, the Seth bot? That's personification. You created it. Now you're immortal in a sense. Does that feel good, or you're scared?

SG: I worked hard with the WordPress folks, the Automattic folks, on the bot. The first thing I did was, I made it so it would never use the pronoun *I*. If it does, that's a bug. It doesn't say I think this and I think that. It says, Seth wrote about this and he said so and so, and then it gives links. What I like about it is that it is, in and of itself, very clear about what it's good at, and it doesn't pretend that it is me because it's not me. I just had a call yesterday with a really big, famous tech company, and they're talking about bringing out a bot that does *none* of those things. That's basically an engineering gimmick that will trick a whole bunch of people into thinking it's smart, but after you poke it twice, all the air comes out of the balloon. I think that's a huge mistake. What we need to do, no matter what we market, no matter what opportunity we bring people, is make it fit in the box in which it is contained. Go to the edges, but don't imagine that pretending it's bigger than those edges is going to last because it won't.

TC: Will there be an open-source bot–a bit like the Sydney character that was part of ChatGPT for a while before they neutered it–that everyone will just talk to, maybe for many hours? Maybe only 10 per cent of the population, but they'll have some kind of emotional relationship with the thing.

SG: Well, there's no doubt in my mind that we're going to see thousands and thousands of variations on LLMs because now that we know the problem can be solved, it's going to be solved in many different ways. But what is it good at? I think it's good at a couple things. First of all, it works cheap. Second, it's always on. The combination of those two things is what most people are missing. They're saying, 'Is this as good as asking Tyler a question about today's news?' No, it's not, but that's not what it's going to be good at. It's good at being always on and cheap.

What that means, for example, is that cognitive behavioural therapy, which is so effective for some people–instead of waiting all week for your fifty-minute session, you'll have twenty sessions a day. You'll just touch it every time you're feeling anxious. It will give you an exercise based on who you are and what you said to it last time. Then you'll go back to what you were doing. All around us, things in our life are going to be enabled by this omnipresent cheap thing with a memory.

Yes, some of them are going to have a personality and it's going to wreak chaos in a whole bunch of different ways, especially where you started this conversation: direct mail scams, spam. Imagine instructing a ChatGPT, 'All right, here are 5,000 people on LinkedIn. Go learn about each one of them. Compose an email to each one pretending you know them, mentioning facts and connections, and scam them out of something. And by the way, please do that over and over and over again forever.' That's got to be happening right now. It's going to be a mess.

TC: Are there general truths about how marketing to women is different from marketing to men? I don't mean always true, but generalities that are mostly true.

SG: What we do when we do almost any work that involves statistics, whether it's economics or marketing or sales or engineering, is we make assumptions and generalisations about these people that we are seeking to serve. We assume that a bunch of people are going to be right-handed. If this thing has to preference right-handed or left-handed, it's going to preference right-handed because we have to make these assumptions. All of the generalisations are false, and many of the generalisations are useful. Is it *useful* to imagine that, in general, a large group of undifferentiated men will respond to something differently than a large group of undifferentiated women? Yes, but it is not useful or fair or moral to then take that useful generalisation and apply it to an individual.

TC: What is an important truth about marketing that very few of your peers would agree with you on? People you respect and are smart, but you think, 'Well, here's this thing. I believe it's true, and the rest of them just don't quite get it yet.'

SG: I think that some of the things you and I have been bumping into as you've been sharing your questions and your readers' questions get to the heart of it. I don't think most people understand what marketing is. Most people think marketing is hustle and hassle and hype and self-aggrandisation and cheating and stealing. Well, those need special names, but that's

> Marketing is telling a true story that serves the people you're telling it to and that spreads.

not what marketing is. Marketing is telling a true story that serves the people you're telling it to and that spreads. That's what marketing is. If somebody says they're a marketer, and they're busy hassling people, I say, 'No, you're not.'

TC: If you're looking at a young person, talking with a young person–they're thinking they might, in some way, become a marketer. I know that term is not entirely well defined. They might just be a content producer. But when it comes to marketing, what are the skills you look for to identify who will be good at it? Of course, intelligence, hard work, but what would be a nonobvious answer, something you look for?

SG: Anybody who has actually done marketing–not worked in a marketing department and gone to meetings, but actually done marketing–has found that the only thing that matters is empathy. When I get a note from someone who says, 'I want to be a marketer,' I point out that of my twenty-one books, only six are about marketing. If you want to be a marketer, go market something. Go buy a bunch of stuff at a garage sale and sell it at a profit on eBay. Go raise $20,000 for charity.

If you're out there raising money for charity, and you're calling on a billionaire to get them to put up a few million dollars to name a building after themselves, you're saying to yourself, 'I would never put $4 million into this campus to name a building after myself.' Well, if that's what you're saying, you can't serve this person because they have all their short-term problem solved, and what they're looking for is a legacy and status. This is a bargain at $4 million.

The empathy that is necessary is to say, well, I wouldn't drink Coke for breakfast, but this person likes drinking Coke for breakfast, and I wouldn't wear pantyhose, but this person wants to. The short version is, you don't need to be a cancer survivor to be an oncologist. What you need to be an oncologist is to have empathy for somebody who's been through cancer.

TC: Which is the best Miles Davis album?

SG: Well, even though I've heard many of them, when I have the choice, I still play *Kind of Blue*.

TC: I might say one of the live versions of *Bitches Brew*, the later work, and *Sketches of Spain* I'm very fond of.

SG: I think those are great choices. For me, Miles's journey is at least as important as Miles's music.

TC: Which is the best or your favourite Stephen King novel?

SG: I can't read scary books.

TC: Do you like horror movies?

SG: Nope, can't even walk into the theatre.

TC: Do you find the Three Stooges funny?

SG: The Three Stooges episode where Curly is in the tub with the pipes, and they keep leaking? Yes, I love classic Three Stooges. There were not that many classic Three Stooges moments, but they were just so good at what they did.

TC: What is the complicated thing they did? How do you think about it?

SG: It's a cartoon come to life. We know they don't hate each other, and we know they're not actually being injured. In later iterations of slapstick, particularly in Hollywood in the eighties or nineties, they lost both of those things. They either made it too personal, or they made it too real. As a result, they got into an uncanny valley where it didn't feel like a cartoon anymore. I think I need it to be jittery 1936 footage for me to suspend disbelief and to imagine I'm just watching a perfectly timed cartoon.

TC: There's a Thai restaurant you mentioned in one of your books, SriPraPhai. What makes that restaurant special? Why did you mention it?

SG: First, it's closed on Wednesday. If you want to go, don't make a special trip because you'll be disappointed. She has a couple branches in Queens and New York. What she did was, she showed up when everyone was pushing edge case restaurants toward the centre—dumb it down, serve Pad Thai, make this thing popular. What *she* did was, she made food for her family, and she did it without apology. She showed up with this warmth and connection.

My family and I would go often, and she would greet us, and we would sit with her. It's grown to four times the size. But it hasn't lost what she set out to do, which is, if you want to make a lot of money, you shouldn't open a restaurant, but if you want to make a difference and stand for something in your culture, this is a good way to do it.

TC: In the last year or two, auction prices for Jasper Johns have gone down somewhat. Do you think he's viewed as too classic or too fusty? What's going on with his work? Why hasn't he ascended to just being America's artist and holding that designation forever?

SG: I grew up in Buffalo. My mum was the first woman on the board of the Albright-Knox, a great museum, one of the most important contemporary art museums in the country. You walk into the Clyfford Still room, and you see magic. You see Jasper Johns or Andy Warhol. You see what happened when we started to separate craft from art in the post-photography world. All of that is real.

What is not real is how much paintings cost at auction. How much paintings cost at auction is a by-product of half money laundering and half speculation. It is a by-product of what do you think is going to go up in value tomorrow, not what is good art. People who love art tend to understand the difference between the two, the same way a company can still be a good company and their stock price might not go up.

TC: Who to you is the great underrated American visual artist?

SG: Oh, I have so many choices. I might say Shepard Fairey. He was right on the edge of the gallery world and decided not to do that and pulled back a little bit. I would say Jill Greenberg, the photographer who has reinvented herself several times over and *really* shifted the way people look at photography. I'm sure a couple will come to me as soon as I stop talking, but I'll put those two out first.

TC: I think I might say Richard Serra, who certainly is highly rated, but I meet smart people all the time who think he's a fraud, and it's amazing.

SG: He is not a fraud. If you go to Dia Beacon and you have a heart and a soul, you will not leave Dia Beacon thinking that Richard Serra is a fraud.

TC: Jeff Koons–how does his work strike you? Genius, fraud, something else?

SG: Anyone who's willing to go that close to bankruptcy that many times cannot be a fraud. You can look at any given piece of art–the balloon animals or the porn series–and say, 'Yeah, it's like he's taken Duchamp too far.' But then you see what he had to do to make the balloon animal such an extraordinary specimen of what it could have been, how much it cost, how long it took, with no promise it was going to work. It's a different kind of craft.

One of the most important pieces of art of the twentieth century is a urinal that is widely attributed to Marcel Duchamp. But in fact, it's quite possible that the Baroness Elsa von Freytag-Loringhoven created it, and he just put his name on it so that the misogynistic art world would see it. But what's interesting about it is, once you have a readymade urinal in an art exhibit, what do you do after that? That's why Duchamp was often called the last artist because he got the joke. He said the joke out loud. He put a bench from the hardware store in MoMA.

But after that, we still have artists because what art is, is a story that resonates with the viewer and changes us. That's what the book is about: significance, the search for meaning. It's not just visual artists that look for meaning. All of us want meaning. If you can find meaning at Dia Beacon, that's fantastic, but every day when we go to work, we've got to figure out a way to find meaning.

TC: How has immersing yourself in the visual arts improved the other things you do, other than the obvious, 'Oh, I try to have my work look nice?'

SG: Oh, it has nothing to do with making my work look nice. It's about the liminal space between here and there. The best audiobook ever recorded is *Just Kids* by Patti Smith. It's not about Patti Smith the rockstar; it's about Patti Smith on a journey from someplace that's sort of safe to someplace that's important. When I see artists–whether it's Miles Davis or Herbie Hancock or Shepard Fairey–do *that*, that's what I want. That is what gets me out of bed in the morning.

Photograph: Jon Tyson

I am not trying to build companies and make a profit. I'm trying to feel that feeling again of, 'Did I do something generative where I explored a liminal space between here and there?' The coolest thing about contemporary art is you can feel that feeling in three seconds if you're in the right place at the right time, whereas it takes much longer when you're reading a book.

TC: You've been very active in online education. What is the biggest problem with scaling the education itself?

SG: Oh, this one is really worth diving into because you're a teacher too. There's a huge difference between learning and education. Education is compliance-based, top-down authority, certificate-granting. It is checking the boxes and proving that you have this thing that used to be scarce is yours now. Learning is all autodidactic. Learning is, did you change by doing a thing?

When online showed up, we had the chance to create online learning, and yet, almost all the money and almost all the time went into online education, and that's heartbreaking to me. I think online education, while it's pluralistic in the sense that we can get to more people, is a pale shadow of what online learning could be, and my hope is that AI could help with that.

TC: What, concretely, do we need to change to make that happen?

SG: Well, the first thing is accreditation and certificates because they *have* to go with education and they *cannot* go with learning. Learning is a body of work. It is who you become, not what piece of paper you get. Let's say you want to make someone into a baseball fan. I'm assuming, from your question, you're a baseball fan?

TC: Not since I was young. It's too slow and boring for me now, along the lines of your comment. But let's say we want to make a baseball fan.

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SG: You don't teach them the history of baseball, give them the baseball encyclopedia, quiz them about Abner Doubleday, and if they do well on the test, let them go to a game. What you do is get them enrolled in the journey of being a baseball fan because five minutes of it was fun, and they want it again. The next thing you know, they're learning statistics because they *want* to. They're learning facts because they *want* to, not because there's going to be a test.

The magic of the original LOGO software for kids, the magic of all the interactions we've been capable of encouraging people to have online, is people choose to learn, and then their body of work follows from that. What we can do with a patient AI or a properly structured workshop online is create the conditions for people to want to do the work, never because it's on the test. If someone says, 'Will this be on the test?' you know which kind of room you're in.

TC: Is the subscription model the future of online education? It will be free. It'll be not-for-profit. What does it look like if things go the way you want?

SG: Well, many of the things that have become ingrained in our online lives are free. Email, Wikipedia, for now, ChatGPT. Free is a really compelling way for an idea to spread. But enrolment often comes with some risk and tension. The enrolment that you feel if you paid $50 to be part of a community–you're saying to yourself, 'Well, this is a sunk cost, but I better defend it. I've got to show up tomorrow.' There are other kinds of enrolment, other kinds of commitment. My hope is that as the marginal cost of these online learning institutions goes down, we come up with other forms of socially appropriate emotional enrolment so that people, regardless of their income or where they live, can do it if they're committed.

The Carbon Almanac, which I did a year and a half of my life full-time as a volunteer–300 other people did it with me. Not one of us got paid. Some people lasted for an hour, and they were gone, and other people were there hours and hours and hours and hours. They emotionally chose to enrol, and that's what created the magic. We need to figure out how to do that for others at scale.

TC: What makes for a good motivational speaker?

SG: All motivation is self-motivation. What a motivational speaker does is *not* say, 'Sending me money will get you what you want.' They do the opposite of that. They establish the emotional connection by transferring that emotion to the recipient so that person can create the conditions for them to achieve what they thought they could achieve. Anything beyond that starts being a scam. Anything beyond that, where you are promising you can heal someone's illness or you're promising they can be a millionaire–that's not what motivational speaking is for.

TC: When you give a talk, what is it about that process that you enjoy? What's the complex, fundamental thing that gets you excited each time?

SG: For the last 25 years, I've probably given a thousand speeches altogether.

TC: And you're not bored, right?

SG: I am definitely not bored. I will tell you, selfishly or generously, depending on your point of view, I don't fly anymore because that was the part I hated the most. Schlepping there, spending 12 hours to get to a place where, for 45 minutes, I could do my work and then have to figure out how to get home. I also didn't like the way it felt to burn quite that much carbon for just that reason. But that aside, here's this group of people who are giving me the benefit of the doubt. Not *completely*, but enough that for the first three minutes, they will follow me on this journey. What can I do in three minutes to earn six more minutes? Then, nine minutes into it, how can I bring something to that room that people will talk about to themselves and to others tomorrow or in six months?

I don't memorise my talk. I have 180 slides, none with words on them. A slide comes up, and I tell a story about it, and I'm listening and interacting with the room. On Zoom, I can do my work, but I have to pretend I can hear the room. That is really exhausting because what I discovered is, it's that interplay with the tension that enables me to do my work the best way.

TC: When you meet and talk with anthropologists, are you impressed by them? Or do you feel there's something missing in their worldview? Do you feel you're one of them or you've transcended them? What's your take?

SG: I have a confession to make. I don't know if I've ever met an anthropologist. But aren't we all anthropologists?

TC: That's *my* view. It's the most fundamental of all the social sciences, and we're all doing it. They get this funny designation as if they're the ones doing it. I look at them, not in a hostile or critical way, but it's like, 'What made you an anthropologist? Is it just age?'

SG: You can say the same thing about economists, couldn't you?

TC: Absolutely, and I do. [laughs]. What makes you a good cook?

SG: Lacking all humility, I am a really good cook. The reason is, I don't follow recipes. I dance with them by understanding what the person who made the recipe had in mind. Having created recipes myself–there're some on my blog–when someone's making a recipe, they don't test–unless they're Kenji–the difference between half a teaspoon and three-quarters of a teaspoon of something. They're not sitting there doing 4,000 variations. They just make the thing, and then they write down the way they made it, but the way they made it is not the only way to make it.

There is a project here. I cook every night because I like the short-term nature of the project. You can visualizs the outcome, and if you understand the components, you can make it. It will be slightly different every time, but it will be delicious because you understand. When I find people who don't like to cook or who say they are bad cooks, it's simply because they're trying to follow a recipe, and that feels like being an indentured servant.

TC: I am also a good cook. Given your methods, how should one think about choosing a cookbook?

SG: For me, cooking changed when my wife got me a cooking class with Chris Schlesinger, who wrote the book *Thrill of the Grill*. It's one of the simplest cookbooks in the world. You take protein and you put it on fire. After that, I bought a few foundational books: *Think Like a Chef*, some books from Alice Waters, Daniel Leaders' ground-breaking books on baking. I didn't buy books of recipes. I bought books where someone who understood how to cook had a narrative about how it all fits together. Now I own a *lot* of cookbooks, but I almost never touch them because the internet, because Kenji– you just type Kenji and then the name of whatever recipe, and you'll find the best version of the recipe.

But you need to understand the fundamentals. That's why certain kinds of baking are so hard because baking is magic. We don't know, really, what's happening. There, you pretty much have to follow a recipe for certain things. The other stuff—sweet potato noodles with sesame oil and buckwheat groats or whatever it is—you know what's going on, and you can taste it as you go. How can you cook without tasting?

TC: Chemistry is a way to think about what many cookbooks offer. Knowledge of chemistry, but you couldn't get it from a chemistry text. What's your best dish?

SG: For a long time, my best dish was my crispy tofu, which I put in the footnotes of my book *Survival Is Not Enough*, because I needed the world to know about my crispy tofu recipe. Lately, I'm going to say it's my tahini ginger date cookies because they're so simple and you can't stop eating them. I also have a Pacojet, which I would strongly recommend to any crazy home cook. You can freeze stuff to 10 degrees below zero and then put it into this thing that spins in a vacuum at 10,000 rpm and turns whatever you froze into a creamy, delightful vegan dessert.

TC: What did you learn from Isaac Asimov?

SG: Isaac worked with me when I was 24 years old. He wrote and published 400 books. I was sitting in his living room in Lincoln Center in New York City, and I said, 'Isaac' –being presumptuous–'How do you go about writing 400 books?' He said, 'Here's the secret.' He pointed to this old manual typewriter. He said, 'Every morning, I sit in front of this typewriter at 7.00 am, and I type until noon. It doesn't have to be good, but I have to keep typing.'

The lesson is, once your subconscious knows you're going to keep typing no matter what, it becomes sufficiently embarrassed by the bad stuff that it will

> I vacillate wildly between optimism and pessimism. I find that optimism is a really useful way to do better tomorrow, but pessimism seems like a likely output from looking up close at what the world is really like.

let some good stuff in. People who think they have writer's block don't have writer's block. They have fear of bad writing. If you show me all your bad writing, sooner or later you're going to have to show me some good writing.

TC: How was he with you? Encouraging? Gruff?

SG: What a delight. I licensed a lot of stuff in my career as a book packager. Getting the rights to the robots novels was surprisingly inexpensive. We worked together in figuring out what the video that we made was going to be. He always gave me–at 24, 25 years old–the benefit of the doubt. He always had a useful contribution, and he never got petulant. He just said, 'How can we make this better together?' So many people who partner want to control, and he just wanted to make it better.

TC: In 2006, you published a famous blog post, 'Advice to Aspiring or Young Writers.' How would you change that advice for 2023, if at all? You wrote two blog posts on advice to aspiring writers. There's a former and a latter.

SG: People send me notes–which I admire them for–saying, 'I'm writing this book or writing this thing. What should I do?' I decided to just list all of the things I could think of. If you type 'advice for authors' at seths.blog, you'll find them. The short version is, publishing is not a business; publishing is an organised hobby.

And there are things in book publishing that are metrics that appear real that aren't actually useful. So, the first step is to ignore the useless metrics. The *New York Times* Best Seller List is a fraud. It is not based on actual fact. Don't bend your life out of proportion to show up on a list that doesn't make any sense.

But beyond that, why are you writing the book? Who are you writing the book for? What change do you seek to make? Writing a book is a magical thing. It will make you better. Everyone should write one. Publishing a book is a totally different project, and most people shouldn't publish their book. Maybe they should just give it away. The shortest version of the advice is–particularly if it's a novel–take your first novel, post it on the internet for free, send it to fifty friends. If it spreads, if other people want to read it, your second novel will get published, but if your first novel doesn't spread when it's free, you probably need to write a better novel.

TC: The story behind your new book, *The Song of Significance*–what was the anthropological reasoning you went through as to why the world needs this book now?

SG: Amazon lost one-third of its annual profits to turnover in 2021. Former Amazon executive David Risher, who's now at Lyft, ordered all employees back to headquarters so he could watch them and surveil them even though they don't want to go, and productivity is the lowest it's been–correct me if I'm wrong–in 70 years of measuring it. All of which are a way of describing how we're sitting here, watching billionaires firing disabled people online for kicks and living in a world where AI and robots and the race to the bottom is making a whole generation say, 'Count me out.' What occurred to me is, everyone knows the answer to the question, 'What's the best job you ever had?' If I ask you about the best job you ever had, you will remember not just how it made you feel, but how productive you were.

TC: Podcast host is my answer, of course.

SG: There you go. So, the question is, why can't we create the conditions for people to have the best job they ever had? Because it's not that you didn't have to work that hard. It's not that you got paid a fortune. In fact, it's probably the opposite. It's probably that people treated you with respect, that you achieved more than you thought you could, that you made a difference, that you did work that matters with people you care about. Well, if we're going to spend 100,000 hours at work in our lifetime, don't we deserve that? Why don't we build that? That's why I wrote the book.

TC: What do you think is the central insight you have about how to build that, that is otherwise under-emphasised?

SG: I think that Frederick Taylor's demise is long overdue, that the purpose of a beehive is not to maximise the amount of honey we produce. The honey is a by-product of a successful beehive. That what we have is the chance to get what we want by connecting with people who have a choice about where they work, who choose to enrol with us, to avoid the false proxies of 'You look like me' or 'You sound like me' or 'I want to have lunch with you' when we hire people, and instead dance with the people from whatever background that are going to make our project better. When you lay it out that simply, people go, 'Well, of course.' Then they go back to work in some place that demeans them and undermines them and asks them to phone it in. It just breaks my heart to see that gap.

TC: What's the most important thing you changed your mind about when writing this book?

SG: I vacillate wildly between optimism and pessimism. I find that optimism is a really useful way to do better tomorrow, but pessimism seems like a likely output from looking up close at what the world is really like. I have changed my mind about pockets of corporate America. I've changed my mind about the caste system and misogyny and how deeply it is rooted in so much of what we do. I wrote an 800-page book that weighs 18 pounds, called *What Does It Sound Like When You Change Your Mind?* I like that sound. I like changing my mind. I try to do that a lot.

TC: What is it that you have become increasingly optimistic about?

SG: When we started working on *The Carbon Almanac,* the first two months, almost all of us were in a stupor because it was so bad–the world, and the trajectory of the world. What I am seeing is that a whole bunch of gears are turning around the world–how many solar plants China is building, and how fast we're moving on fusion, finally. Also, just an awareness. I just have a hunch that maybe we will figure that out.

TC: What is the detail you have become most increasingly pessimistic about?

SG: I think that our ability to rationalise our lazy, convenient, selfish, immoral, bad behaviour is unbounded, and people will find a reason to justify the thing that they used to do because that's how we evolved. One would hope that in the face of a real challenge or actual useful data, people would say, 'Oh, I was wrong. I just changed my mind.' It's really hard to do that.

There was a piece in *The Times* just the other day about the bibs that long-distance runners wear at races. There is no reason left for them to wear bibs. It's not a big issue. Everyone should say, 'Oh, yeah, great, done.' But the bib defenders coming out of the woodwork, explaining, each in their own way, why we need bibs for people who are running in races–that's just a microcosm of the human problem, which is, culture sticks around because it's good at sticking around. But sometimes we need to change the culture, and we should wake up and say, 'This is a good day to change the culture.'

TC: So, we're all bib defenders in our own special ways.

SG: Correct! Well said. Bib Defenders. That's the name of the next book. Love that.

TC: What is, for you, the bib?

SG: I think that I have probably held onto this 62-year-old's perception of content and books and thoughtful output longer than the culture wants to embrace, the same way lots of artists have held onto the album as opposed to the single. But my goal isn't to be more popular, and so I'm really comfortable with the repercussions of what I've held onto.

TC: What was your first job ever?

SG: My first job was as an entrepreneur at fourteen, selling biorhythms that were done on the University of Buffalo computer system. Then I did some volunteer help, writing marketing material for a ski binding company that my dad worked for. My first *real* job was cleaning the grease off the hotdog machine at the Carousel snack bar in the Eastern Hills Mall, where I broke two coffee canisters my first day and learned the hard way that this wasn't for me. Then I got a job in a bagel factory, where I was almost killed by a bagel mixer capable of mixing 100 pounds of flour at a time.

TC: What has been the best job you've ever had?

SG: I've had so many great jobs, but the one that is worth highlighting is what happened to me at Spinnaker Software in 1983, a job I got at the last minute because I needed to move to Boston for the summer. The chairman forgot to tell the company he had hired me as a summer intern. I walked in the first day, and David Seuss, the CEO, came out of his office to my cubicle, welcomed me, shook my hand,

went back into his office, shut the door, called the chairman, and said, 'Who the hell is that?' It could all have gone downhill from there, but David just opened doors, and he said, 'You're going to make mistakes, and we trust that none of those mistakes are going to be so bad that they're a problem. Go make a ruckus.'
I got another job that same day at Parker Brothers. I should have taken the Parker Brothers job. Every statistical inference said, 'Go to work for Parker Brothers.' A week into the summer, Parker Brothers laid off the entire department. I would've lost my job after five days.

TC: Why didn't you take it?

SG: Because there were only thirty people at Spinnaker. Even though I grew up with Parker Brothers, Spinnaker felt like the future, and Parker Brothers felt like the past. I figured I could have a chance to do something different there, but I couldn't have defended it if you'd asked me. It was one of the great lucky breaks of my life.

TC: If someone read your current book, *The Song of Significance*, they would be more or less likely to make the same choice that you did?

SG: I think that it would be *way* more likely because I asked all the wrong questions when I was looking for that job. I thought about all the wrong things when I did my analysis, but ignored them. Back when I was building one of the first internet companies, we struggled to hire people. I was sitting in the office of the guy who was running disney.com at the time, and he had a stack of paper on his desk two inches thick. I said, 'What's that?' He said, 'Those are the résumés that came in last week.'

Why were all these people applying to work at disney.com and not for my company, which was doing pioneering work? The answer is, because you could tell your friends you worked at Disney. I could have told my friends I worked at Parker Brothers the year I was in between at Stanford, but instead I said, 'I want to tell my friends I worked at a company they never heard of.' Maybe we should do that more, because if the conditions in *that* job enable you to grow and are treating you with dignity and respect, then that's where you should work.

TC: So, being too long on status is one of those bibs you were talking about.

SG: I agree, yes.

TC: Very last question, Seth: what is it you will do next?

SG: I ask that myself every day. I have created a life where I have to ask myself that question every day. The day I get tired of it, I should commit to something that lasts more than a few years. The magic of a book is, it's a big chunk of your life, and then it's not. There's a new space right in front of me, and I don't know.

TC: It doesn't have to be a book. Just proximately, what is literally the next thing you will do?

SG: Oh, the next thing that I will do is give a talk at Harvard on the book, but the next thing that I will do that isn't related to the book is, I am diving deep into how communities and software connect. I've got to get smarter about a whole new generation of software that I'm a little out of sync with.

TC: Seth Godin, thank you very much.

SG: What a pleasure. Thank you, Tyler. This is one for the record books. Appreciate your time.

Conversations with Tyler

Published in 2023 and transcribed for The Podcast Reader.

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The trouble with net-zero carbon emissions

Why we need a new narrative

HOLLY BUCK
VOLTS 2023

Interview by David Roberts

David Roberts: Over the course of the 2010s, the term 'net-zero carbon emissions' migrated from climate science to climate modelling to climate politics. Today, it is ubiquitous in the climate world – hundreds upon hundreds of nations, cities, institutions, businesses and individuals have pledged to reach net zero by 2050. No one ever formally decided to make net zero the common target of global climate efforts – it just kind of seemed to happen. The term has become so common that we barely hear it anymore, which is a shame because there are lots of buried assumptions and value judgements in the net-zero narrative that we are, perhaps unwittingly, accepting when we adopt it. Holly Jean Buck has a lot to say about that. An environmental social scientist who teaches at the University at Buffalo, Buck has spent years exploring the nuances and limitations of the net-zero framework, leading to a 2021 book – *Ending Fossil Fuels: Why Net Zero Is Not Enough* – and, more recently, some new research in nature climate change on residual emissions. Buck is a perceptive commentator on the social dynamics of climate change and a sharp critic of emissions-focused climate policy. Holly Jean Buck, welcome to Volts.

Holly Jean Buck: Thanks so much for having me.

DR: Reading your book really brought it home to me how much net zero had kind of gone from nowhere to worming its way completely into my thinking and dialogue, without the middle step of me ever really thinking about it that hard. Let's start with a technical definition of what net zero means. And then maybe a little history, like, where did this come from?

HJB: Well, most simply, net zero is a balance between emissions produced and emissions taken out of the atmosphere. So we're all living in a giant accounting problem. So how did we get there? I think there have been a few more recent moments. The Paris agreement is obviously one of them, because the Paris agreement talks about a balance between anthropogenic emissions by sources and removals by sinks. The other thing was the Special Report on 1.5 degrees by the Intergovernmental Panel on Climate Change, which further showed that this target is

Photograph: Katie Moum

only feasible with some negative emissions. But the idea of balancing sources and sinks goes back away towards the Kyoto Protocol, towards the inclusion of carbon sinks, and thinking about that sink capacity.

DR: The broad thing you say about net zero is that it's not working, that we're not on track for it. I guess intuitively, people might think, well, you set an ambitious target and if you don't meet that target, it's not the target's fault. The target is not the reason you're failing. What do you mean exactly when you say net zero is not working?

HJB: Well, I think that people might understandably say, 'Hey, we've just started on this journey. It's a mid-century target, let's give it some time?' But I do think there are several reasons why it's not going to work. We have this idea of balancing sources and sinks, but we're not really doing much to specify what those sources are. Are they truly hard to abate or not? We're not pushing the scale up of carbon removal to enhance those sinks, and we don't have a way of matching these emissions and removals yet. Credibly all we have really is the voluntary carbon market. But I think the main problem here is the framework doesn't specify whether or not we're going to phase out fossil fuels. I think that that's the biggest drawback to this framework.

DR: Well, let's go through those one at a time, because I think all of those have some interesting nuances. When we talk about balancing sources and sinks, the way this is supposed to translate is that a country tallies up all of the emissions that it is able to remove and then adds them all up. And then what remains? Emissions it either can't reduce or is prohibitively expensive to reduce are the so called difficult to abate or hard to abate emissions. Those are called its residual emissions, the emissions that it doesn't think it can eliminate.

And the theory here is then you come in with negative emissions, carbon reduction, and you compensate for those residual emissions. So to begin with, the

> “I think the main problem here is the framework doesn’t specify whether or not we’re going to phase out fossil fuels. I think that that’s the biggest drawback to this framework.”

first problem you identify is that it’s not super clear what those residual emissions are or where they’re coming from, and they’re not very well measured. So maybe explain what would you like to see people or countries doing on residual emissions, and what are they doing?

HJB: So the state right now is extremely fuzzy. I’ll just back up and say that my colleagues and I looked at these long-term strategies that are submitted to the UNFCCC under the Paris Agreement. Basically, each country is invited to submit what its long-term strategy is for reaching its climate goals, so we’ve read fifty of those. They don’t have a standard definition of what these residual emissions are, although they refer to them implicitly in many cases. You can see the residual emissions on the graphs in these reports. But we don’t have a really clear understanding in most cases where these residual emissions are coming from, how the country is thinking about defining them, what their understanding of what’s truly hard to abate is. I empathise with this being a challenge, because what’s hard to abate changes over time as new technologies come online. So, it’s hard to say what’s going to be hard to abate in 10–20 years. But we could get a lot better at specifying this.

DR: So, without a good sense of residual emissions across the range of countries, we don’t have a good sense of how much carbon removal we need. Is there something easy to say about how we could make this better? Is there a standardised framework that you would recommend? Are any countries doing it well and precisely identifying where those emissions are, and explaining why and how they came to that conclusion?

HJB: There are fourteen countries that do break down residual emissions by sector, which is the first, most obvious place to start. Number one, everybody should be doing that and understanding what assumptions there are about what sectors. Generally, a lot of this is non-CO2 emissions, and emissions from agriculture. There are some emissions left over from industry, too, but having clarity in that is the most obvious thing. Then I think we do need a consistent definition as well as processes that are going to standardise our expectations around this. That’s something that’s going to evolve, I think, from the climate advocacy community. Hopefully a norm will evolve about what’s actually hard to abate versus what’s just expensive to abate.

DR: Kind of a small sample size. But of the fourteen countries that actually do this, are there trends that emerge? What do these fourteen countries currently believe will be the most difficult emissions to eliminate, and is there agreement among those fourteen countries?

HJB: It’s pretty consistent that agriculture is number one, followed by industry. In many cases, transport, at least short transport, light duty transport, is considered to be fully electrified. In many cases, the power sector is imagined to be zero carbon. But I will also say that the United Kingdom is the only one that even included international aviation and shipping in its projection. So, a long way to go there.

DR: This is not really our subject here, but out of curiosity, what is the simple explanation for why agriculture is such a mystery? What are these emissions in agriculture that no one can think of a way to abate?

HJB: It varies by country, but a lot of it is nitrous oxide. A lot of it has to do with fertiliser and fertiliser production, fertiliser over application and some of it is methane from the land sector, from cows. So I think maybe that is considered a more challenging policy problem than industry.

DR: Something that has puzzled me about this framework and the entire debate, is you see a problem and think, well, if we put our minds to it, could we solve that in the next 30 years? I mean, probably. It has never been clear to me why people are so confident that carbon dioxide removal is going to be easier than just solving these allegedly difficult to solve problems over the next several decades.

HJB: I think it just hasn't been thought through all the way yet. But I expect in the next five years most people will realise that we need a much smaller carbon removal infrastructure than is indicated in many of the integrated assessment models.

DR: Thank you for saying that. This is my intuition, but I don't feel technically adept enough to make a good argument for it. But I look at this and think, which of these problems are going to be easier to solve? Finding some non-polluting fertiliser or building a carbon dioxide removal industry three times the size of the oil industry? It seems crazy to view the latter as, oh, we must do that because we can't do the first thing. It just seems crazy. So for the first problem here with net zero is we don't have a clear sense of what these residual emissions are, where they come from, exactly how we define them. Without that, we don't have a clear sense of the needed size of the carbon dioxide removal industry. That said, problem number two is that even based on what we are currently expecting CDR to do, there doesn't appear to be a coordinated push to make it happen. We're just waving our hands at massive amounts of CDR but we're not seeing the kinds of mobilisation that would be necessary to get there. Is that roughly accurate?

HJB: Yes, and I think it follows from the residual emissions analysis because unless a country has really looked at that, they probably don't realise the scale of CDR that they're implicitly relying on.

DR: So, they're implicitly relying on CDR for a couple of things, and residual emissions is only one of the things we're expecting CDR to do.

HJB: There's also the idea that CDR will be compensating for legacy emissions, or helping to draw down greenhouse gas concentrations after an overshoot. I don't think anybody is saying that exactly because we're not at that point yet, but it's kind of floating around on the horizon as another use case for carbon removal.

DR: So it does seem like even the amount of CDR that we are currently expecting, even if most countries haven't thought it through, just the amount that's already on paper that we're expecting it to do, we're not seeing the kind of investment that you would want to get there. What does that tell you? What should we learn from that weird disjunct?

HJB: For me, it tells me that all the climate professionals are not really doing their jobs. Maybe that sounds mean, but we have so many people that are devoted to climate action professionally and so it's very weird to not see more thinking about this. But maybe the nicer way to think about it is to say, oh well, people are really focused on mitigation. They're really focused on scaling up clean energy which is where they should be focused. Maybe that's reasonable.

> "It has never been clear to me why people are so confident that carbon dioxide removal is going to be easier than just solving these allegedly difficult to solve problems over the next several decades."

DR: Yeah, maybe this is cynical, but some part of me thinks, if people and countries really believed that we need the amount of CDR they're saying we're going to need, that the models show we're going to need, by mid century they would be losing their minds and pouring billions of dollars into this. The fact that they're not, feels like no one's really taking this seriously. Everyone still somewhat sees it as an artifact of the models.

HJB: I think the tech sector is acting on it, which is interesting. You've seen people like Frontier mobilise different tech companies together to do advanced market commitments. I think they're trying to incubate a CDR ecosystem. So why does interest come there versus other places? Not exactly sure. I have some theories but I do wonder about governments because in our analysis we looked at the most ambitious projections offered in these long-term strategies and the average amount of residual emissions was around 18 per cent of current emissions. Why are they not acting on it more in policy? I think maybe it's just the short-termism problem of governments not being accountable for things that happen in 30 years.

DR: Yeah, this is a strange phenomenon. In many areas of climate policy there are many possibilities for business to eventually build self-sustaining profitable industries out of them. But CDR, insofar as it exists, it's going to exist based on government subsidies. So, it's bizarre for business to be moving first in that space and for government to be trailing. It seems like an upside-down world. I can't figure out government's motivations for not doing more and I can't figure out businesses motivations for doing so much.

HJB: Well, I think businesses acting in this R&D space to try to kind of claim some of the tech breakthroughs in the assumption that if we're serious about climate action we're going to have a price on carbon. We're going to have much more stringent climate policy in a decade or two. And when that happens, the price of carbon will be essentially set by the price of removing carbon. And so, if they have the innovation that magically removes the most carbon, they're going to be really well set up for an extremely lucrative industry. This is all of course hinging on the idea that we're going to be willing to pay to clean up emissions just like we're willing to pay for trash service or wastewater disposal or these other kinds of pollution-removal services. Which is still an open question, but I sure hope we will be.

DR: If you're a business and you're looking to make money, even if you're just looking to make money on clean energy, it seems like there are a million faster, easier ways than this multidecade effort. I feel like I don't have my head wrapped around all those dynamics. So the first problem is residual emissions. They're opaque to us, we don't totally get them. Second problem is there's no evident push to scale of the kind of CDR we claim we're going to need. Then the third thing you mentioned is there's no regime for matching emissions and removals. Explain that a little bit. What sort of architecture would be required for that kind of regime?

HJB: Well, you can think of this as a market or as a platform, basically as a system for connecting emissions and removals. This has been a dream of technocratic climate policy for a long time, but I think it's frustrated by our knowledge capabilities. Maybe that'll change in the future if we really do get better models, better remote sensing capacities. Obviously, both of those have been improving dramatically and machine learning accelerates it. But it assumes that you really have good knowledge of the emissions, good knowledge of the removals, that it's credible. For some of the carbon removal technologies we're looking at, what's called MRV: monitoring, reporting, and verification, is really challenging. Especially with open systems like enhanced rock weathering or some of the ocean carbon removal ideas. So we need some improvement there. Then once you've made this into a measurable commodity, you need to be able to exchange it. That's been really frustrated because of all the problems with carbon markets, and scams, bad actors. It's all of these problems and the expense of having people in the middle that are taking a cut of the transactions.

DR: So you have to match your residual emissions with removals in a way that is verifiable. In a way that the removals are additional. You get back to all these carbon market problems and as I talked with Danny Cullenword and David Victor about on the podcast long ago, in carbon offset markets, basically everyone has incentive to keep prices low and to make things look easy and tidy. And virtually no one, except maybe the lonely regulators has the incentive to make sure that it's all legit. There's just overwhelming incentive to goof around and cheat and almost no one with the incentive to make sure it's valid. All the problems that face the carbon offset market just seem ten times as difficult. When you're talking about global difficult-to-measure residual emissions coupled with global difficult-to-measure carbon dioxide removals in a way where there's no double counting and there's no shenanigans. Is that even a gleam in our eye yet? Do we even have proposals for something like that on the table?

HJB: A lot of the conversation around Article Six and the Paris agreement and those negotiations are working towards better markets. I think a lot of people are focused on this, but there's definitely reason to be sceptical of our ability to execute it in the timescales that we need.

DR: If you're offsetting residual emissions that you can't reduce, you need that pretty quick. This is supposed to be massively scaling up in the next 30 years and I don't see the institutional efforts that would be required to build something like this, especially making something like this bulletproof. So, we don't have a good sense of residual emissions. We're not pushing very hard to scale CDR up even to what we think we need. And we don't have the sort of institutional architecture that would be required to formally match removals with residual emissions. These are all, I guess, what you'd call technical problems.

Even if you accepted the goal of doing this framework, these are technical problems that we're not solving yet. The fourth problem, as you say, is the bigger one, perhaps the biggest one, which is net zero says nothing about fossil fuels. Basically. It says nothing about the socioeconomics of fossil fuels or the social

dynamics of fossil fuels. It says nothing about the presence of fossil fuels in a net-zero world, how big that might be, etcetera.

HJB: This was a desirable design feature of net zero because it has this constructive ambiguity around whether there's just a little bit of residual emissions and you've almost phased out fossil fuels, or if there's still a pretty significant role for the fossil fuel industry in a net-zero world. That's what a lot of fossil fuel producers and companies are debating.

DR: Yes, I've been thinking about this recently in the context of the struggle to get Joe Manchin to sign decent legislation. If you hear Joe Manchin when he rambles on about climate change, it's very clear that he views carbon dioxide removal as basically a technological license for fossil fuels to just keep on keeping on. In his mind, that's what CDR means. Whereas if you hear like, someone from the Natural Resources Defense Council talking about it, it's much more like we will eliminate almost everything. And that's a wide gulf.

HJB: I don't want to seem like the biggest net-zero hater in the world. I understand why it came up as a goal. I think it was a lot simpler and more intuitive than talking about 80 per cent of emissions reduction over 2005 levels, or like the kind of things that it replaced. But, ultimately, this is a killer aspect to the whole idea – not being clear about the phase out of fossil fuels.

DR: You say you can envision very different worlds fitting under net zero. What do you mean by that?

HJB: Well, I mean, one axis is the temporality of it. So is net zero just one moment on the road to something else? Is it a temporary state or is it a permanent state where we're continuing to produce some fossil fuels and we're just living in that net zero world without any dedicated phase out? I think that right now there's ambiguity where you could see either one.

DR: That is a good question. In your research on this, have you found an answer to that question of how people view it? I'd love to see a poll or something. I mean, this is a tiny subset of people who even know what we're talking about here. But among the people who talk about net zero, do you have any sense of whether they view it as a mile marker on the way to zero-zero, or as sort of like the desired endstate?

HJB: I haven't done a real poll, but when I'm giving a talk at a conference of scientists and climate experts twice I've asked this question, do you think it's temporary or do you think it's a permanent desired state? And it split half and half each time, which I find really interesting. Within climate expert communities, we don't have a clear idea ourselves.

DR: That's such a huge difference. If you're going to have CDR do this accounting for past emissions, for your past emissions debt, if you're going to do that, you have to go negative. You can't stay at net zero, you have to go net negative. So it would be odd to view net zero as the end state. Yet that seems like what's giving fossil fuel companies permission to be involved in all this.

HJB: We do need to go net negative. One challenge with the residual emissions is that carbon removal capacity is going to be finite. It's going to be limited by geography, carbon sequestration capacity, ecosystems and renewable energy. So if you understand it as finite, then carbon removal to compensate for residual emissions is going to be in competition with carbon removal to draw down greenhouse gas concentrations. And so we never get to this really net negative state if we have these large residual emissions, because all that capacity is used to compensate rather than to get net negative.

DR: Given how fundamental those questions are, and how fundamental those differences are, it's a sort of the revelation reading your book. Those are very, very different visions. If you work backwards from those different visions, you get a very, very different dynamic around fossil fuels and fossil fuel companies and the social and political valence of fossil fuels. It's weird that it's gone on this long with that ambiguity, which, as you say, was fruitful to begin with, but you think it's time to de-ambiguise this.

HJB: Yes, because there are huge implications for the infrastructure planning that we do right now. It's going to be a massive transformation to phase out fossil fuels. There are a million different planning tasks that need to have started yesterday and should start today.

DR: I guess also, and this is a complaint, but there's long been, from some quarters of the environmental movement, a criticism of climate people in their sort of emissions or carbon greenhouse gas emissions obsession. When you contemplate fossil fuels, it's not just greenhouse gases. There are all these proximate harms – air pollution, water pollution, geopolitical issues. I think the idea behind net zero was, let's just isolate greenhouse gas emissions and not get into those fights. But I wonder, as you say, we have to make decisions now.

HJB: I mean, it was a huge trick to get us to focus on what happens after the point of combustion rather than the extraction itself.

DR: It says nothing about extraction, too. So, your fifth and final critique of net zero is that it is not particularly compelling to ordinary people, which I think is kind of obvious. I really doubt that the average Joe or Jane would even know what you mean by net zero or would particularly know what you mean by negative carbon emissions. So, what do you mean by the meta narrative? Why do you think this falls short?

HJB: I mean, accounting is fundamentally kind of boring. I think a lot of us avoid it, right? And so, if I try to talk to my students about this, it's really work to keep them engaged and to see that actually all this stuff around net zero impacts life and death for a lot of people. But we don't feel that when we just look at the math or we look at the curve and we talk about bending the curve. We have this governance by curve mode. It's just not working in terms of inspiring people to change anything about their lives.

DR: This gets back to something you said before about what used to be a desirable design feature when you are thinking about other things that you might want to bring into a meta narrative about climate change. Most of what people talk about and what people think about is social and political stuff. We need to talk about who's going to win and who's going to lose, and the substantial social changes and changes in our culture and practices that we need. We need to bring all these things in.

But then the counterargument is those are what produce resistance and backlash. And so as far as you can get on an accounting framework, if the accounting framework can trick various participants and institutions into thinking they're in a value-neutral technical discussion, if you can make progress that way, why not do it? Because any richer meta narrative is destined to be more controversial and produce more political backlash. What do you think about that?

> "... I think the problem is we haven't invested at all in figuring out how to create desire and demand for lower carbon things."

HJB: No, I think the problem is we haven't invested at all in figuring out how to create desire and demand for lower carbon things. I mean, maybe the car industry has tried a little bit with some of the electric trucks and that kind of thing, but we have all this philanthropy, government focus, all the stuff on both the tech and on the carbon accounting pieces of it. We don't have very much funding going for getting out and talking to people. About why are you nervous about transitioning from gas in your home? What would make you feel more comfortable about that? Lots of times it falls to women to do this kind of relational work and hasn't been invested in. So I think there's a whole piece we could be doing about understanding what would create demand for these new infrastructures, new practices, not just consumer goods but really the adoption of lifestyle changes because you need that demand to translate to votes for the supportive policies that will really make a difference to this problem.

DR: As a narrative, net zero is fatally ambiguous about the role of fossil fuels in the future. In your presentation you raise the prospect that the whole thing could collapse, that the net-zero thing could collapse. What do you mean by that and how could that happen?

HJB: I think this looks more like quiet quitting than anything else, because I do think it is too big to fail in terms of official policy. There's been a lot of political capital spent. I don't think companies will back away from targets, but there will be more reports of targets not being on track. And I think what happens is that it becomes something like the Sustainable Development Goals or dealing with the US national debt where everybody knows you're not really going to get there, but you can still talk about it aspirationally, but without confidence. It did feel, at least a few years ago, that people were really trying to get to net zero. And I think that sensation will shift and it'll become empty like a lot of other things, unfortunately. But I think that creates an opportunity for something new to come in and be the mainframe for climate policy.

DR: Let's talk a little bit about what characteristics you think a better metanarrative about climate change would include.

HJB: First, I think it is important that we are measuring progress towards a goal, for accountability reasons. But I think there needs to be more than just the metric. I think that the broader story also has to have some affect or emotional language. There has to be some kind of emotional connection. I also think we have to get beyond carbon to talk about what's going on with ecosystems more broadly and how to maintain them and have an intact habitable planet. And then just pragmatically this has to be a narrative that enables broad political coalitions. It can't be just for one camp and it has to work on different scales. I mean, part of the genius of net zero is that it is this multi-scalar planetary, but also national, also municipal, corporate, even individual does all of that. So those are some of the most important qualities that a new frame or a new narrative would have to have.

DR: I can imagine measuring other things you mentioned in your book, several sort of submeasurements other than just this one overarching metric. You could measure how fast fossil fuels are going away. You could measure how fast clean energy is scaling up. I can definitely see the benefit in having a wider array of goals, if only just because some of those just get buried under net zero and are never really visible at all. But the minute you start talking about a metanarrative with affect, with emotion, the way to get that is to appeal to people's values, and things that they cherish and feel strongly about. But then we're back to the problem we spoke about earlier, which is it seems like, especially in the US these days, we're just living in a country with two separate tribes that have very different values. So the minute you step beyond the sort of technocratic metric, which in a sense is like clean and clinical and value-free and start evoking values, trying to create emotion, you get greater investment and passion in some faction and alienate some other faction. How do you think about that dilemma?

HJB: I actually think people do have the same values, but they're manipulated by a media ecosystem that profits from dividing them, which makes it impossible for them to see that they do have aligned values. I base that just on my experience, as a rural sociologist and geographer talking to people in rural America. People are upset about the same exact things that the leftists in the cities I visit are upset about too. They really do value justice. They think it's unfair that big companies are taking advantage of them. There are registers of agreement about fairness, about caring for nature, about having equal opportunities to a good and healthy life that I think we could build on if we weren't so divided by this predatory media ecology.

"
... the central obstacle in climate action, from my point of view, is the broken media ecosystem and if we could unlock that or revise it, we could make a lot of progress on other stuff.
"

DR: I don't suppose you have a solution for that, in your back pocket?

HJB: I have a chapter on this in a forthcoming book which you might be interested. It's edited by David Orr. It's about democracy in hotter times, looking at the democratic crisis and the climate crisis at the same time. I've thought a little bit about media reform, but it's definitely not my expertise.

DR: It would be nice if people had a different story to tell about climate change that had these features you identify, that brought people in with values and drew on a broader sense of balance with the earth and ecosystems. But even if they did, you have to have the mechanics of media to get that message out to tell that story. And so you have one whole side of the media working against you, and one at best begrudgingly working with you. It just doesn't seem possible. I don't know why I'm talking to you about this problem. No one knows a solution to this problem, and it seems like this is the problem that every other problem depends on.

HJB: We should talk about it because the central obstacle in climate action, from my point of view, is the broken media ecosystem and if we could unlock that or revise it, we could make a lot of progress on other stuff.

DR: The narrative must be able to enable broad political coalitions. I'd like to hear what role you think fossil fuels are playing in this? It seems to me pretty obvious that fossil fuels do not want any broad political coalition about anything more specific than net zero in 2050. Which, as you point out, leaves room for vastly different worlds, specifically regarding fossil fuels.

So who are the agents of this new narrative? Like, who should be telling it and who has the power to tell it?

HJB: I think sometimes in the climate movement we grant too much power to the fossil fuel industry. It's obviously powerful in this country and in many others, but we have a lot of other industries that are also relevant and powerful too. You can picture agriculture and the tech industry and insurance and some other forms of capital standing up to the fossil fuel industry because they have a lot to gain as renewables continue to become cheaper. I do think that we need to think about those other coalitions. I don't think it needs to be all grounded in forms of capital. I think there's a lot of work to be done in just democratic political power from civil society too. What I'd love to see is philanthropy, spending more money on building up that social infrastructure alongside funding some of this tech stuff.

DR: I've talked to a lot of funders about that and what I often hear is like, 'Yeah, I'd love that too, but what exactly David, what do you want me to spend money on? Be specific.' And I'm always like, 'Well, you know, stuff, social infrastructure, media, something.' I get very hand wavy very quick because I'm not clear on exactly what it would be.

Do you have any predictions about the future of net zero as a concept, as a guiding light, as a goal? You identify these ambiguities and tensions within it that seem like it can't go on forever without resolving some of those. But as you also say, it's become so ubiquitous and now plays such a central role in the dialogue and in the Paris plans etcetera, that it's also difficult to see it going away. So, it can't go on forever, but it can't go away. Do you have any predictions how it evolves over the coming decade?

HJB: Well, it could just become one of these zombie concepts. So, this is an opportunity for people to get together and think about what other thing they would like to see. Is it going to be measuring the phase out of fossil fuels, having a dashboard where we can track the interconnection queue and hold people accountable for improving that? Are we going to be measuring adaptation and focusing on that? Are we going to be thinking more about the resources that are going to countries to plan and direct a transition?

We could start making those demands now and we could also be evolving the broader language to talk about and understand the motion. We have some concepts that have been floated and already lost some amount of credibility, like sustainability, arguably just transition. We have Green New Deal. Will that be the frame? Is that already lost? What new stuff could we come up with? Is it regeneration or universal basic energy. I think there's a lot of languages to explore and so I would be thrilled to see the climate movement work with other movements in society, with antiracist movements, with labour movements and more to explore the languages and the specific things we could measure and then take advantage of the slipperiness of net zero to get in there and talk about something else we might want to see.

DR: Okay, that sounds like a great note to wrap up on. Thank you for coming. Thank you for the super fascinating book and for all your work, Holly Jean Buck. Thanks so much.

HJB: Thank you.

Volts

Published in 2023 and transcribed for The Podcast Reader.

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On the Brain's Mysteries

Will we ever understand consciousness?

PATRICK HOUSE AND ITZHAK FRIED
ECONTALK, 2023

Interview by Russ Roberts

RR: Today I have two guests. The first is author and neuroscientist, Patrick House. He was on the program in December of 2022 talking about his book, *Nineteen Ways of Looking at Consciousness*. That book is framed around a one-page paper in *Nature* from 1998, a paper that describes surgery on a patient named Anna who was having seizures; and the surgery was an attempt to stop those seizures.

Patrick, welcome back to EconTalk.

PH: Thank you.

RR: My second guest is Itzhak Fried, Professor of Neurosurgery and Psychiatry and bio-behavioural sciences in the David Geffen School of Medicine at UCLA, and Professor of neurosurgery at Tel Aviv Medical Center in Tel Aviv University, Sackler Faculty of Medicine. Itzhak is one of the authors of the paper in *Nature* that I mentioned. And, you were in the operating room, is that correct? You were one of the surgeons?

IF: Yes, I was the surgeon. In fact, the scene itself is not in the operating room. It's actually following an operation. These patients, in order to find out where the seizures are coming from, we have to implant electrodes. And these electrodes are present for a period of seven days because we are waiting for the patient to have spontaneous seizures to find out where the seizures are coming from. At the same time, we can apply electrical stimulation to try and get a map of the brain. Meaning we want to identify areas which are important for language and important for other cognitive function so that we can avoid those in the final surgery. So, the scene is the patient is in the room, the electrodes are in the brain, of course everything is closed. There's a big dressing, and we apply electrical current to certain areas to see where various functions are.

> Why is it different when a protozoan parasite that nestles itself into a neuron can change or shape will, versus when an electrode can change or shape will? I see no real difference.

In this particular case, we were interested in language. We were showing Anna – she's a lovely 16-year-old, but she had very bad seizures – pictures of a horse and basically asked her to name it, and applying electrical stimulation to find out if when we interrupt this function, it means that that area is critical for that function.

She was looking at a picture – I think it was a fork – and we pushed the button introducing electrical stimulation, and then she burst into an amazing laughter. And we said, 'Just a minute. Why are you laughing?' And she said, 'Don't you guys see? This fork is very funny.' Next, we had her read a whole paragraph – I remember very well – about a rainbow, and she's reading this paragraph. We push the button, electricity goes in, and she bursts out laughing. We said, 'Why are you laughing?' And she says, 'Well, don't you guys see this stupid paragraph about the rainbow? Isn't it funny?'

This was real laughter. It wasn't a mechanical laughter. She was in fact laughing so hard that at some point I was concerned that she was not going to stop laughing. So, finally we're just standing around pushing the button and she started laughing hysterically. We say, 'Why are you laughing?' She says, 'You guys are so funny.' So, that triggered something. It was like a unique observation. And the question was, what is the meaning of that?

RR: We've just heard about this strange surgery. Patrick shared with me a clip of Anna. This is brain surgery. This is crazy stuff. As has Patrick pointed out to me, there are no pain sensors in the brain.

IF: There are, of course, cases where we can do mapping in the operating room. I can do mapping in the operating room because the brain is a painless tissue.

PH: Because it has nothing to send the signal to. It's the brain.

IF: The brain is painless. So, you can touch it. In fact, the only painful stuff is the skin and the covering of the brain. The brain itself, you can manipulate and the patient can be awake. But, in this particular case, the electrodes were implanted because we needed to do a long monitoring outside of the operating room.

RR: Patrick sent me a film clip of Anna, and when Itzhak says that she was really laughing, she is breaking a gut. She can't get over how funny this is. But, what is this? That's part of what we're here to talk about.

I also want to add, there's a forthcoming episode of EconTalk coming out soon on lobotomy and Walter Freeman, who is a pioneer of lobotomy and defended it until his dying day. You're doing something like lobotomy, but a little better than Walter Freeman–

IF: Oh, no, no, I want to make it very clear. It is completely, absolutely different.

RR: Explain.

IF: Here we're trying to identify an area which is causing a very severe illness, which is in fact life-threatening. Experience over many years has shown that some of these seizures come from a very clear point, sometimes, in the brain. It can be a little tumour, it can be a vascular malformation, it can be some kind of scar, but sometimes you cannot really see it even on an MRI. And you need to find the electricity at it's actual source and then remove these tissues. So, it's completely different, totally different. I think it took some time to get away from this dark period in the history of medicine.

RR: People just poked around and hoped for good things. Patrick?

PH: What Itzhak does is more high performance like F1 racing, and lobotomy is a demolition derby.

RR: These are very different things. I apologise. Patrick, why did this paper captivate you, and why did you use it to frame your book the way you did?

PH: I don't think I've told you this, Itzhak: I used to have the paper framed. I had printed it out and framed.

When I was in grad school, getting my Ph.D. I was studying a mind-control parasite – this little parasite that gets into a mouse brain and makes it lose its fear and gain an attraction to a cat. It's a natural phenomenon, that goes from one cat to another cat. To me, there is something beautiful about the fact that a tiny single-cell protozoan can nestle itself into this painless brain and alter things and change things and change preferences. Specifically, that's the thing I was most interested in, changing preferences. It changes the mouse's preference for the smell and odours of a cat.

What I found so beautiful about this paper when I came across it, was it seemed as if – in the same way that this parasite kind of took over free will or took over the will of the organism to shape or alter its preferences – it seemed like what Itzhak was able to do by pushing the button was in a very local way change Anna's preferences, change this girl's preferences towards what she finds funny and what she doesn't find funny. And, what I found terrifying – if I may, also about this study – was that it made me question every time I've ever laughed.

If you trace the causal chain back, what really is the difference between the electrode causing Anna to laugh and the causal chain that leads now to us 25 years later also laughing? These are the kinds of questions I really like to ask. Why is it different when a protozoan parasite that nestles itself into a neuron can change or shape will versus when an electrode can change or shape will? I see no real difference.

RR: But, it's somewhat disturbing to imagine that that's the case. It raises the question of: what does it mean to laugh, to be sad? Early in the book, Patrick tells the story being visited by a vacuum repair person, who comes to his house to fix his vacuum. I remember the story because I've read it very recently. Do you remember it?

PH: I do. I do.

RR: Please tell it.

PH: I went to the vacuum repair place. I was in Palo Alto. I did grad school at Stanford and I lived in a house with a lot of people. This vacuum cleaner repairman – someone had dropped off this vacuum. I had to go pick it up. And, as I do, and I walk in, the guy is on the phone and he just kind of has the phone up by his ear and he lowers it and says, 'Who are you? What do you want?' And I'm like, 'Oh, I'm picking up a vacuum.' He's like, 'What do you do?' Just in this kind of friendly, confrontational way. You can be both. And I say, 'I'm a neuroscientist.' And, he goes back on the phone, he's like, 'Oh great, this guy is a neuroscientist. He asks me, 'Can you help my brother? He's an addict. He's in and out of rehab. What can you do?' And, I said, 'I'm not really sure. Addiction is complicated. It could be a social thing. There's probably some mechanisms down in the weeds, but context matters. I can't help.' And, his response was, 'I work with vacuums because I can fix them. Why do you work with brains if you can't fix them?' That was a profound moment for me as a laboratory scientist. Itzhak does actually fix them. I just kind of theorise about them.

It is a cute little kind of anecdote, which to me has relevance to where we are in the history of our understanding of the brain. Where we would put ourselves if we had a timeline of other scientific disciplines – of physics and mathematics. We have neuroscience, our own little band. The question is, where are we on the path of discovery? What do we know?

I believe that we're still in the Babylonian era, looking up at the stars, knowing where they'll be, but not why. I think there's something really profound about the fact that other than finding a source in the brain that is causing someone pathologic harm, there aren't that many pure clean cures for a lot of diseases of the brain.

When you ask a neuroscientist, for example: Give us an explanation, give us a full theory of a basic emotion like the joy that Anna felt alongside the laughter. Ask any neuroscientist what is joy, they'll change the subject or ramble in some autopilot way. That's because we don't have an actual E=MC2 answer to anything.

Physics has the large Hadron Collider. They can dig a tunnel and spend billions of dollars and spend hundreds of PhDs and years and study a fundamental feature of the way that the universe is constructed. If they had built that tunnel a couple decades ago, or if they had built it a couple centuries ago, or if they built it a couple centuries from now, that same Higgs boson, that same particle they're interested in, it would still be there. They would still be able to capture it. Physics has this timelessness: gravity is the same now as it was 5,000 years ago. And, if people had been around then and solved it, then they would've come to the same conclusion.

What I find interesting and almost kind of tragic about the study of consciousness and in neuroscience is that we're losing what might be unique data sets, which are what's happening on the inside of everybody's heads. We're losing these every generation. Every person that disappears, that's an irreproducible data set that

we will never have again. So when neuroscience is progressing, and when I talk about where we are in our study of the brain, I feel this kind of internal urgency that we should be going faster because unlike physics, which you can discover things at any time you want and it's going to be the same, there could be a mind, a conscious person whose brain will never be replicated again. And they might live now in some obscure poverty and something is happening on the inside of their mind that is the secret or key to it all. And, we don't find them. We don't even know how to keep track or catalogue what's happening on the inside of their head.

RR: Itzhak – might you like to comment on that?

IF: Well, I think that we live in the real world. And in the real world, to some extent, brain stimulation is here. First of all, it's present already in medicine in many areas. For instance, you can stimulate a certain centre in a Parkinson patient. You actually achieve changes – like, profound motor changes – which are actually easy to measure, and actually see. Now where it gets maybe a bit trickier is really the cognitive functions that are not so easy to actually measure. What you are really talking about is what we accumulate through life in becoming a memory, like some big memory pool that maybe one day we can download it into a computer and it will live after us.

RR: It's a question I have right here.

IF: Okay, so the answer is: Not yet. However, for instance, if you're talking about memory, first we come back to the 1940s to a neurosurgeon named Wilder Penfield – and I have seen it also – stimulates an area and suddenly a memory comes and a patient just expresses a memory. This is sort of an anecdotal thing, but they're very real. I have had patients that are stimulated and suddenly they say, 'Oh, I have a memory of Led Zeppelin,' or 'I have a memory of "Bohemian Rhapsody",' or 'I can hear music.' We haven't even touched upon will yet, because we're keeping it for the main course. This is just the apéritif, at this point. But, definitely being able to trigger memories, but not in a consistent way. We understand how memories are incorporated and how they're actually consolidated and stored and we can affect it with electrical stimulation.

In the real world, we are dealing with millions and millions of people who are slowly disappearing in degenerative diseases like Alzheimer. The mind just dissipates – memory for recent events goes first, and then the entire human mind eventually dissolves. Can we affect it? Do we understand it? Obviously, in addition to the philosophical understanding of where we are with respect to physics – and my own view is that we are where classical physics was in the end of the nineteenth century. We haven't yet gotten to relativity; we haven't yet gotten to quantum. We are not there yet. But we have pressing needs. We have people with neurological disorders, especially with aging. That's where we are.

RR: But, you said, 'Not yet.' So, you think that we will make inexorable progress toward understanding?

IF: I think we will, but I just wonder if it's going to be a linear process – you know, just accumulating more and more and more data. Actually, when I look at the last 20 years, I don't see a major breakthrough. I see a lot of techniques. I see a lot of data, I see a lot of papers. There is no breakthrough in the level of the breakthroughs that have been present in physics.

RR: A lot of good published papers. A lot of journals.

IF: Talking about the journal – at that time I was still young and senseless and I said, I have to really send it to *Nature*. And, everybody said, 'This is crazy. This is an n=1. What can you learn from an n=1?'–

RR: One data point.

IF: One data point. This was, I think, the only paper which was accepted on first round. Reviewers today are terrible. They give you a hell of a time, and you have to go through tortuous ways. This was accepted almost as is, because people understood that there was something very special. I talked to Patrick about it: I equated this type of observation – which are completely haphazard – to looking at a bubble chamber. And, once in a while, a particle goes through; and if you are zoning in on it, you may have an insight that happened that was completely chance.

PH: And don't let the brevity of the paper mislead anyone. I think 'The Structure of DNA [Deoxyribonucleic Acid],' the double helix paper, is only two pages also in *Nature*. So, there's a kind of inverse correlation between the length of the paper and the interestingness–

RR: Oh, that's for sure. One more thing about Anna, because I want to try to bring out in a richer way the puzzle and the 'aha' moment that each of you had.

When I watch a Marx Brothers' movie, if it's one of the better ones, I will laugh. So, the question is: the way I understand what you're saying is that the Marx Brothers' movie, is it creating the exact same kind of electrical stimulation that Itzhak did, mechanically? And, if so, how? Or are those two totally different

things that are not related?

PH: To me, the study really made me question: How do I know that anytime I've ever laughed, whether I laughed for the genuine reason that I thought that I laughed?

RR: And, then anytime you did anything other than laugh would fall in the same category.

PH: This is why it's so beautiful. The best kind of scientific results are about one very tiny thing, which is actually about everything. This is actually about everything, which is: How do we ever know that when we give these kinds of after-the-fact reasons, they're for the right reason?

I'm on a nominal book tour, and I gave a lecture about this book, and there was an actress in the audience. She came up afterwards and said: You know, what I find really interesting about Anna's story is that she, the actress, often has to pretend to laugh for her job and she said, 'So I have to train myself to laugh. But what I found really fascinating is she said that when she remembers having laughed – so this is after the fact – she calls up her memory and her memory is a combination of real laughs from real life and fake ones from her job as an actress. She feels equal joy in the memory of that.

IF: Initially when I wrote the paper I said, 'Well, we managed to introduce the motor program of laughter. We introduced the emotional part.' And she filled in every time with a cognitive explanation. But later when I was thinking about it, it really comes back to the theory of emotion by William James: actually look at an emotion as a reaction, essentially, to a physical bodily sensation. And I think that's quite an interesting angle to look at it.

At one point Anna said it was funny because I laughed. So there is something there along what you are essentially saying when your actress is laughing. Actually, the funny sensation is generated maybe on top of that, which can bring us to question whether this is really an afterthought or whether free will is an afterthought.

RR: I want to talk about free will. There's a line in your book, Patrick, that I've been thinking about. Just to give you an example of these kind of strange ways we fool ourselves. I had a thought recently. I interviewed Sam Harris on EconTalk, and we talked about free will. And Sam doesn't believe in free will.

And I thought of this thought experiment. If you go back to the Big Bang when all of matter in the universe is compressed into a point – a tiny, tiny point – and it expands outwards; and the net result is us. There's no free will, it's all built into that little dot. It's an interesting thought experiment that we have no volition whatsoever. In fact, all we have is the story we tell ourselves. Now, do either of you think that's true? And does it matter?

> "... I find it quite comforting that when I have a thought that I don't want to have that, I remind myself that it's just electricity at the end of the day."

IF: Well, the question is, let's bring it down to electricity and take the position that we are essentially an electrochemical machine.

This brings me back to another bubble chamber – and this was when I was a resident. We were doing the same thing with a different patient. When we stimulated in a certain area, she was very verbal, which was really wonderful. She said, 'I feel like I have an urge to move my hand.' So, just by applying electrical stimulation to this very particular area, we actually created a sensation of will.

RR: Right. So, are we just puppets?

PH: What about the guilt as well?

IF: Guilt, of course. We have a different story, the counterpart to laughter, which is guilt. So, 20 years after this first story, another young woman appears in my office and tells me the following story. She says, 'A year ago I came back from school and suddenly I had this bad feeling, like malaise. I felt guilty and I didn't know why I was feeling guilty and I thought maybe I offended somebody at school.'

In short, this thing kept repeating over and over. There was some thought about maybe this being a

psychological problem. After a year she had a major seizure, and that triggered an MRI. And in the MRI, there was a little tumour – a benign tumour, but it was sitting right in a certain position – I won't bore you with the details, but it's sitting just against an area which is associated in brain models with depression. Just next to it. It's only later when I went in with a laser fibre and eliminated this area – especially the interface of this tumour with that area, that this episode went away. So, here again, electrical activity is associated and causally related to a feeling of guilt. In the same way that the laughing girl looked for explanation for laughter, she looks for explanation for this primary sensation of guilt.

PH: You said earlier: Do you want to talk about will or guilt? To me, it's the same. I'm curious why you even disentangled those.

All the things we're feeling – I find it quite comforting that when I have a thought that I don't want to have that, I remind myself that it's just electricity at the end of the day. And whatever it is that I'm feeling, that I could if I needed to, I'd call up Itzhak and ask, 'Can you please stimulate that part of the brain? I don't wish to feel guilt anymore.' For example.

RR: Or grief or all the human emotions that make life meaningful, rich. The Buddhists would tell you that – they didn't call it electric – but they just say: It's just noise passing, just passing through randomly. You should let it go. It's just a thought. I have trouble with that idea, but it's very similar to what you just said.

PH: I find it comforting, but I could easily see the other side where it's terrifying instead.

RR: A lot of times I'll feel sad; and I'll comfort myself saying, 'Oh, that's because of that thing I read a few minutes ago. I'm not really sad. I just read that sad thing and it's still echoing. But of course, as you write in your book, we don't really know why people are sad, right?

PH: I have yet to hear a compelling explanation – like, a full scientific explanation for that simple emotion – no.

RR: Let's talk about artificial intelligence. We've been talking about laughter: we are the only creature that laughs. A hyena's laughter – it's a sound that reminds us of human laughter. Roger Scruton's book, *On Human Nature*, reflects on this at some length. It's a very difficult thing to understand why we laugh. It has nothing to do with evolution. You have to tell some story. I think most people who are materialists would just say: It's an add-in to evolution. It just came along for the ride. It's gravy. It's not inherently related to survival.

> "The history of science is littered with scientists throughout the centuries who have said, like, 'Oh, well, there's nothing left to do.'"

But, human beings – we're the only creatures that can laugh. We are the, I think, the only creatures that have, as Harry Frankfurt said, desires about our desires. We don't just want stuff. We can – as one of you said earlier, I don't like having that feeling. I wish I didn't have that thought; but we can have those emotional thoughts. I can't imagine – which is not definitive, obviously, but I can't imagine that artificial intelligence – ChatGPT, Sydney, Bing, whatever is the next version – could have laughter, could have sentience, or could have consciousness. Do you agree or disagree? Itzhak?

IF: Well, I think I may not be in a position to agree or disagree at this point, because I don't think we really understand what consciousness is. Phenomenologically, the question is: How would you test something like this? The Turing test is not good enough at this point. What kind of test are we going to use to make this decision that an entity in front of us is conscious or not conscious? That, I see, is one of the main challenges.

RR: Patrick?

PH: Well, I mean, we have to have a serious conversation if it does end up true that these AIs are conscious. Because that means also the Japanese bidets are conscious. Everything we interact with is conscious. I actually agree on an epistemological scientific level: we don't have the tools to investigate

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whether or not something is conscious in a way that we might not understand. My intuition is that they're not even close. I think these things are basically video games. They're trained like video games and there is no difference – they're kind of large 'if' statements.

But, it is quite true that we don't really know, and we don't have a good formal definition of what a different kind of awareness, what a different kind of consciousness would look like. People have trouble enough asking about all of the species on the planet that probably have some sort of tiered version of awareness or sentience or consciousness. We have trouble enough with the ones we're given, let alone now we have to go create our own.

RR: Patrick, this seems like a very silly question, but I like this question in your book. What's the difference between a bowling ball and a pigeon? Now, it seems pretty clear, but it's not so clear. So, talk about it.

PH: As I heard it – this was the story told to me – that all of the difference between physics and biology can be entirely and utterly explained by going up to the roof of any building and taking a bowling ball and a live pigeon of equal weight and dropping them both. Everything that you need about the division between physics and biology, physics and neuroscience is contained within the fact that you know where the bowling ball is going to fall, and you just have no idea whatsoever what the pigeon's going to do.

As scientists, you want some sort of predictability. You want a model that explains things. They're both subject to the same forces of gravity and the same physical forces that we all are. But, somehow that pigeon, the configuration of that pigeon's atoms – that pigeon is just going to fly away and you have no idea where or why. And, that's what we're trying to solve.

IF: I'm not sure about the pigeon, though. You don't think that if you had all the variables and had access to every neuron in the pigeon's brain that you could essentially assign – at least have a statistical model. And, in quantum mechanics, maybe, that gives you a distribution of the possibilities with probabilities.

PH: It's true. There are some things you could say. The pigeon is probably, unless its wings are clipped, not going to hit the ground. So you can say that the odds of it hitting the ground are extraordinarily low.

This is the question about free will, Russ, which is back to your point. We started as a tiny little dot somewhere in the universe. It all exploded. And, then we have all of us. If we know enough about the pigeon – if we know enough about every single proton pump and every single mitochondria and every single microtubule along a line and within the pigeon's brain – could we then predict where it's going to go or know what it's going to do next? If we had access to the equivalent of every atom in that pigeon's brain and we knew the relevant causality between the interactions of those

atoms, could we tell that it makes strange loops in this sky? The real answer is, if this was a homing pigeon, we do know where it would go eventually, right?

RR: This program is called EconTalk, so it's time to introduce a little bit of economics. F.A. Hayek in his Nobel address made the point that macroeconomics is something like a pigeon: his first analogy was actually to a sports team, and I think it was soccer. He said, can we predict who's going to win a football game?' We're not very good at it. One answer would be: we just don't have enough data. And he said, but we're not close to that and we never will be. Therefore, we can't predict when the next recession is coming, because it's a similar challenge. Instead of atoms, it's human beings. We're all complicated. Although sometimes we know that if you bail out Silicon Valley Bank, the odds of the next one have gotten a little bit higher. I'm pretty confident about that. So, we understand some principles of behaviour. The bird will fly; it will not hit the ground almost certainly unless its wings are clipped. But, beyond that, we are pretty much in the dark.

I think you could maybe think about the different perspectives you could have on this. One view could say: it's just a matter of time. Eventually we'll get enough data and we'll be able to make these predictions, we'll understand where the pigeon's going, we'll understand when you're going to laugh next. I'll have enough sensory data to make those predictions. And the other view says: never. Never. Too complicated, too much interaction, too many variables. What do you think?

IF: Well, I think, again, it's a practical question in the sense that how much information can you really get from the brain? For instance, if you look at Neuralink, Elon Musk and the enterprise, putting a little hole in the skulls the size of a dime, and having a robot implant a thousand hair-like electrodes, you get a huge amount of information. The more information you can actually get, the better an understanding you may have. You may never reach that perfect total absolute pigeon destiny. The pigeon destiny, we'll never know it for absolute sure except for demise. But I think the key thing is really information. How much information can we actually get from?

RR: I'm susceptible to Nassim Taleb's view: bigger data, bigger mistakes – that there's so much interaction that we're going to then be drawn into false correlations and be fooled into thinking we understand things we don't. Patrick, do you want to comment?

PH: I guess one question I ask myself sometimes is why am I a neuroscientist? Why am I studying the brain? I imagine there are two paths. Neuroscientists and scientists and mathematicians and everybody will be proceeding forward along this path of scientific discovery for centuries and centuries and centuries. And then, at some point, at the very end will be one of two possibilities. One, we now finally know enough to be able to fully predict a biological organism's behaviour and decision-making. The other, we actually have all of the data and it turns out, guess what? We still have free will. There's something in there that comes from the ether, and we can choose.

RR: You like that, Itzhak?

IF: I don't know. Maybe what we need is the help of philosophers because maybe we are already stuck in a way that we can't even understand – what does causality really mean? Maybe we are stuck in a way that we don't understand some fundamental principles of our thinking. That there is really a major barrier that we cannot cross unless there is a breakthrough, if there is a breakthrough.

PH: If I was imagining myself – this is back to the question of why am I studying the brain? Why am I a neuroscientist? Why do I care about consciousness? If I thought I was on the road that ended at determinism, if I thought I was on the road where I'm just going to spend my life incrementally increasing the amount of knowledge in the world that we have about the brain, because I know that at the very end it's all going to be explained and it's all just going to be simple determinism, and there isn't free will: I just wouldn't do that. I would find that extremely depressing.

And so, for me, my great hope, and the only way I can keep going down this road is believing that I'm on the other one, the other path, which is that I don't care how many physicists come along and give their explanations for how the microtubules work and all these things. At the very, very end, there's still going to be something that we have, that brains have, that is unexplainable. I feel like I have to be on that kind of faith-based path in order for me to justify doing what I'm doing. Otherwise, I'm a pinball machine.

RR: I want to come back to this image you had, Patrick, earlier, that every person is a data set, and every person that dies is a data set that's lost. I think of two things, and maybe you can talk about them separately or maybe they go together. One is that fundamentally underlying that view is a view that what I'm experiencing inside my head is not exactly what you're experiencing.

PH: True.

RR: That's really beautiful and deeply troubling. I have to start with the assumption you do, as a scientist, that I'm not a data set of one. I have many things that are just like what you're thinking, and you can thereby figure out something about me. And yet that might not be true.

Similarly, what I think of as the hard problem of consciousness is that we have figured out such extraordinary things about where we came from and how the world works. But we haven't figured out how we're able to figure stuff out and experience it uniquely as an individual human being. Except for that, we kind of understand everything. One view says we basically understand nothing about what it is to be human, which is deeply, deeply beautiful and troubling, disturbing and magnificent. At the end of your book, Patrick, you talk about this idea that we're trying to use the thing that we have – it's all we have – to understand itself. But it can't be done?

PH: To the point that we seem to have started to almost complete our understanding of other fields or other disciplines. The history of science is littered with scientists throughout the centuries who have said, like, 'Oh, well, there's nothing left to do.' Mid-1800s physicists, they quit. They quit to run a sheep farm because they're, like, 'Well, physics is solved. We did it. We've done everything.' I really believe that even humanity is at its infancy still. We're going to keep discovering things. I think what's remarkable, absolutely remarkable about biology: almost every time we've discovered something fundamental about the way that the world works, we find that biology has harnessed it in some capacity.

RR: Give some examples. You talk about it in the book.

PH: Electricity. We didn't know about electricity, and I don't even know when we even knew, but we've been electric beings the entire time. All life that has neurons has been exploiting batteries? The reason we all need salt in our diet is because it creates a battery within us. So, we've had batteries and electricity, our bodies have kind of understood. In order to catch a ball, you have to have a model of the approximate equation of gravity. When people discovered quantum physical effects, it was also noticed that the retina can respond to a single photon, a single quanta of light. The receptors between the kind of neurons in our brain, the neurotransmitters, there are receptors that can respond to a single individual quanta of information. Every time we discover something, we find that the brain or a biological entity has taken advantage of it in some way.

> "Magnus Carlsen, the highest-rated chess player in history, was once asked what kind of chess board he has at home, and he said, 'I don't have a chess board at home.' He just plays in his head. He just practices in his head."

So, I actually have a lot of faith or optimism that we'll keep discovering things. Chemists will keep discovering things, physicists will keep discovering things, and we will then look in the brain and be, like, 'Oh yeah. Turns out we've been exploiting that as well.'

To the other point, about how every person we lose is a lost data set. It sounds almost like I'm objectifying them, like I'm grinding them up into data. What I mean – and you're right to focus on this – there's an underlying premise there, which is that our brains are different, and that's something I fundamentally believe. So, we know that there are kinds of the basic perception of the world in terms of how rich your mental imagery is, if you close your eyes and try to imagine something. There's a wide range of kinds of images and the richness and vividness with which we can imagine on the insides of our heads.

There's this beautiful interview I watched with someone who literally, when he's imagining designing something at work, has to pull over to the side of the road because it interferes with his actual vision. His mental imagery is so strong; and this guy is a chip design engineer. That's no coincidence. His father was a bridge engineer. When he hires people he strips them of their technology, gives them a chalkboard or a whiteboard and says, 'Draw me the last thing that

you worked on that failed.' The person has to, from scratch, draw an intricate chip design. Very few people can actually do this.

Magnus Carlsen, the highest-rated chess player in history, was once asked what kind of chess board he has at home, and he said, 'I don't have a chess board at home.' He just plays in his head. He just practices in his head.

Some people have nothing on the insides of their heads when they close their eyes. Some people have no images, some people have no inner monologue, some people cannot rehearse a song. Some people that are composers can compose in their mind. When I hear all of these pieces of what I consider to be data, I think of Charles Darwin, and I think of what it took to arrive at a theory of evolution by natural selection. It took understanding variation across the world. It took understanding that there's 10,000 ways to make a finch beak. I would guess that there are more kinds of ways that there are to be human and conscious than perhaps there are species on this planet. There's variation across the insides of our heads. We don't have tools to describe it.

Language is a terrible tool for this. Language did not evolve to accurately describe what's happening on the inside of our minds. It evolved to be good enough. People can be with their partners their entire lives. And, if you then ask, 'Oh, honey, do you dream in colour? Finally, for the first time ever, they will realise that one of them has spent their entire life dreaming in colour and the other one has no visual images on the inside of their head. Just by the way, I just am curious. Do you dream in colour?'

RR: I don't know if I dream in colour or not. I had a very vivid dream about my father a couple nights ago, and I couldn't tell you whether it was in colour or not.

PH: There are categorically two answers. One, 'Of course I do. What are you talking about?' The other is, 'I don't know.' It baffles people when they hear this. This is just one example. To me, this is finch beak variation. And so, when I say every human that dies, we're losing a dataset, what I mean is that a species of finch is going extinct. If we're going to have a theory of consciousness – one of the hard things about the theory of consciousness when we do ultimately have a unified theory is that it has to explain everything. It has to explain when you're coming out of anesthesia and you get angry because only some parts of your brain are awake. It has to explain that every moment of everybody's life. And we're losing data every day.

IF: About your question about the data. I'm afraid that data is going to be lost. There may be some remnants of it. But it's very clear that I will never understand what it is to be Russ. I can only guess, I can only make some assumption. It's true, we have some mechanisms like theory of mind and mirror neurons, which sort of help me understand a little bit about who you are. I don't think minds are going to be downloaded in the way that they will be eternal. We know that.

The second issue is really that there probably is an absolute limit to that thing to understand itself, and that limit is absolute. There's something that we don't understand, but I don't believe that we will reach that stage that you are so frightened of – complete mechanic and understanding.

RR: A belief in God says there is such an imaginable thing, but it's not accessible to any human, so it may as well not be.

IF: Baruch Spinoza, I think probably hinted to that.

RR: Do you want to say something else, Patrick?

PH: I just like continually moving in the direction of the unexplained ...

IF: And hopefully it will remain not completely explained.

RR: My guests today have been Patrick House and Itzhak Fried. Gentlemen, thanks for being part of EconTalk.

IF: Thank you.

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Published in 2023 and transcribed for The Podcast Reader.

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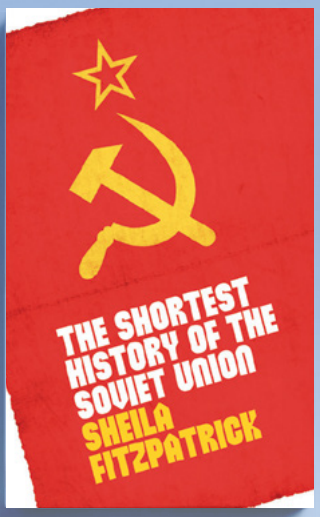

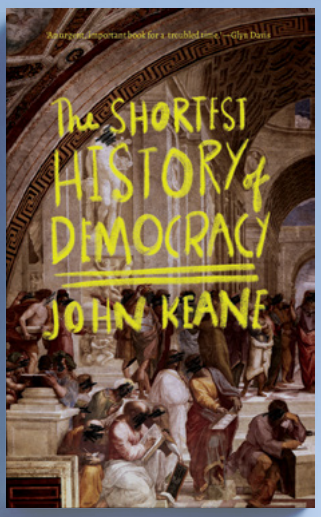

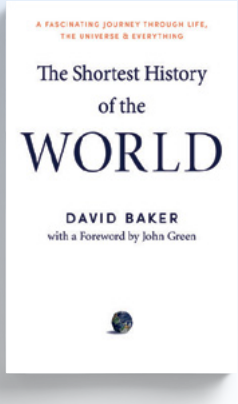

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Monetary Policy without Interest Rates

ERIC MONNET
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Interview by Russell Napier

Russell Napier: I'm delighted to welcome Eric Monnet. Eric is the author of *Controlling Credit: Central Banking and the Planned Economy in Postwar France, 1940–1973*. As we'll discover, *Controlling Credit* is also about controlling money. I love one of the subtitles of Eric's book, 'Monetary Policy without Interest Rates.' Eric, why don't you explain to our modern audience what monetary policy without interest rates is and what it looks like? I think most people think that interest rates are monetary policy. Explain the dynamic in the context of your book and that will give us a good place to begin to discuss how it works and the implications of it.

Eric Monnet: Thank you very much for the invitation. I'm glad to be here and to talk about these books of economic history. But as I was writing it, I would say the issues around this book became more prominent, and now more than ever. So, the issue of interest rates does not mean that there was no interest rate. There was an interest rate, but the interest rate was not used for influencing inflation or the business cycle more generally. Meaning the central banks. It was true for the central bank of France, but it was true for most European central banks during this period and also for many other areas.

It's still true in many emerging markets that central banks affect credit and business cycle inflation through quantity rationing rather than through interest rates. So instead of changing the price of credit, they just impose quantity rationing to banks in order to stop these banks from lending. This can take many forms and a lot of them are reviewed in the book. It can become quite baroque to see how many forms it could take. It could take the form of credit ceilings, meaning that banks were not able to increase their lending by more than a certain percentage by month or by quarter.

It could take also the form of what was called discount ceilings. So, discount ceilings are not on the total outstanding loans of the banks, but on the refinancing at the central bank, meaning that each bank had a quota and once they reached this quota, they could no longer borrow from the central bank. So, it was a strong constraint on these banks. There were also reserve requirements that maybe people know more about. Reserve requirements are a way to constrain the bank from increasing lending based on the fact that they have to keep reserves at the central bank.

These are the main tools, but each of these tools has also some diversity because in this kind of world, the central banks can use these quantitative tools in many different ways, can adapt it to the size of the bank, to different sectors. For example, there were different rules for housing credit and for corporates. But the main idea is very simple. That instead of raising interest rates, you just restrict credit by all these quantitative instruments in order to fight inflation or to control the business cycle. I think it's one of the main lessons of the book.

During that time, contrary to what people have said that central banks were Keynesian institutions, loving inflation, it was really not so true. I mean, they were really fighting inflation because after the war, in many countries the main problem was inflation. So they were not inflation lovers. I mean, they use these quantitative tools to fight inflation and maybe we can go on to explain why they were using these tools rather than interest rates later on.

RN: We'll be getting on to that later for sure, and it's particularly relevant given what's going on today. For those listening who think this is a conversation about bank credit, we better remind people why it's also a conversation about money. So, I just wanted

Photograph: Ferran Fusalba Roselló

to read from the Bank of England website, which reminds us all how money is made. Money is more than banknotes and coins, says the Bank of England. If you have a bank account, you can use what's in it to buy things, typically with a debit card, because you can buy things with your bank account.

We think of this money even though it's not cash. Therefore, if you borrow 100 pounds from the bank and it credits your account with the amount, new money has been created. It didn't exist until it was credited to your account. So in talking about all these ways in which the central bank was able to control, with quantitative methods, bank credit, they were also, of course, in the business of controlling money, as you said. But what I think is fascinating, I just want to read a little bit from your book, is the impact of this, the incredible broad-ranging of this. You write early in the book:

'Moreover, the goals of a policy of intervening in credit allocation were multiple and uses of the term were consequently numerous and often vague and multivocal. It could be used for purposes of monetary policy, attempting to limit the credit level through better allocation, industrial or social policy helping key economic sectors, budgetary policy given priority to government financing, trade policy favouring credit to export sectors, capital controls favouring domestic loans, financial stability preventing an excess of credit that is potentially disconnected from real activity in particular sectors and so on.'

So the degree of control that you explain in monetary policy without interest rates it gets into every nook and cranny of the economy. And is that what it was designed to do or did that all end up as a byproduct?

EM: No, it was designed to be a complement to strong state intervention in financial systems and, more specifically, in the allocation of credit. Meaning that at that time, the post-war period, people had lost faith in a free market, to say the least. So it's not only in principle. Remember, it's not so long after the Great Depression. Most of the people at that time thought that the banks had not performed well to finance investment. It's not only that banks have created crisis, but it's also that banks are seen as institutions that have not been able to finance long-term investment.

What happened in France, but again, this is really not specific to France, is that the government developed what we would call today a Public Development Bank. And their role is to finance long-term investment in some priority sectors, which are not determined by financial returns but really by the government. So it's not a communist economy, it's not a command economy.

People at the time thought it was still a free market in some way. But there is a lot of state intervention. For example, if at some point the government has realised that housing credit is too low and there is a shortage of housing. And if there is a need to contract aggregate demand and credits because other sectors are booming and there is inflation. They will use these quantitative tools I was talking about before to be sure that there will be a decrease in credit in some sectors, but not in the housing sectors. So it is about making monetary policy, in the sense of fighting inflation, compatible with all the broad objectives of the state regarding credit allocation.

RN: Let's jump to the modern day. I'm sure you've read the speech by Christine Lagarde on 17th April in New York City, when she talks about why the central bank policy of using interest rates to attempt to target demand is passe and why we have to move on to something else. She recommends in her speech that central banks need to get onto the business of dealing with supply side, not demand side. That's what I think of when I hear your last point. You were saying how basically by controlling bank credit there was an allocation of capital, effectively debt capital in this case, to deal with supply issues and you flagged residential property. I don't know if you've seen the speech of April 17th, but does it smack of this system if Christine Lagarde is talking about using central bank policy to deal with supply side issues rather than using interest rates to control demand side issues?

EM: So, yes and no. I would say yes, because during this period supply side issues were seen as something to be considered by central banks. But there is a big difference with today, and I think it's really important to emphasise it. At that time central banks were definitely key institutions, but they were not taking decisions alone. That's a big difference with today.

When a central bank in the 1950s or sixties recognised that they had to deal with supply side issues, they were just saying they were going to finance more some kind of institutions, especially mostly the public development banks, which were themselves dealing with supply side issues. Meaning that in many countries there is a special bank set up by the government for priority financing to industry. With the idea that although bond markets were functioning, they were not providing enough capital to long-term investment. So they set up a special bank to do that and the central bank was just providing liquidity to these banks.

Central banks were a key part of the general credit policies of the time. But they're really not that today. Now they are more the only game in town, and I think that's a big problem. Central banks alone cannot say what are priority sectors. It's very difficult to know what central banks, and especially an independent central bank, can do.

This is the subject of a more recent book I have written, which will be published in French next year, called *Balance of Power.* I think there is now a big gap between what central banks are doing and the legitimacy of their actions. They say they are going to engage in all these new issues – supply side issues, green lending – but these institutions really cannot do that alone.

RN: Absolutely. Paul Tucker raises this in his book *Unelected Power* and refers to over mighty citizens. Now you cover the postwar period – the central bank wasn't independent at all in this system. There was a huge amount of government influence on Banque de France. Is that correct?

EM: There was. But again, it's more complicated than people usually think. For example, in the mid-1960s a French government had to resign because the central bank was so opposed to the government's budget. Parliament agreed with the central bank, and the government was pressured to resign. It's an interesting case, which highlights that the issue of central bank independence is more complicated than what we usually think.

RN: One of the prevailing facts in that period you mentioned is that financial markets really played very little role in France after the war, whether that was the bond market or the equity market. So the person who controlled the central bank controlled most things. One of the things that jumps off the page is that one of the reasons the government and central banks like this is it worked really quickly.

So the current market narrative asks, when will interest rates bite? When will interest rates change? The quantitative control thing was pretty easy because they changed the next morning after the implementation of the change in the quantitative policy. We didn't have to sit around and think for weeks, months, and years as to when the impact of higher rates was going to come home to roost because the change in the quantity worked immediately. Was that a reason you think that they chose this as a methodology? That you can see a direct result rather than having to wait through a kind of market system where a higher price of money would ultimately impact the quantity of money?

EM: You're completely right. I mean, this was a very important reason right after the war, because again, right after the war, the two main problems are reconstruction and inflation. There's a lot of inflation everywhere after the war. Inflation after the war in France is 40 per cent. How do you fight 40 per cent inflation with an increased interest rate? Either you completely kill the economy, which is not what you want to do after a war. Also, because it's uncertain, just like the effect of interest rates. So, they realise that doing this kind of rationing actually has much more direct and immediate consequences on credit. So, this is a very important point, which was very relevant at that time.

RN: The Bretton Woods agreement was in existence for most of the period you discuss in your book. I wanted to read from your book in relation to capital controls and discuss whether these capital controls were necessary because of the Bretton Woods agreement. You write that: 'Capital controls were necessary to make credit controls fully effective when there was a potential conflict between the balance of payments and the domestic monetary policy stance.' Do you still think that capital controls are a necessary part of credit controls or can we have credit controls without capital controls?

EM: I think that if there are strong credit controls, much stronger that what we have today, which I would classify as light credit controls, then capital controls are necessary.

Take one example: If your main goal is to decrease prices in one sector, let's say the housing sector, if you just cut credit to housing but other foreign banks are able to finance the housing market from abroad, then everything you are doing is meaningless. It's not effective. This is one obvious example, which is maybe one of the most radical. But you can find this kind of logic in many similar mechanisms.

In practice when you look at how capital controls really work, you see that they are more a complement to domestic credit controls, or sometimes even industrial policy. This is one reason if you look at how some emerging markets today use capital controls, the capital controls are usually long lasting. There are very few capital controls that are just there for one or two months, like the textbook model would suggest. Usually, capital controls are in place for years, and quite targeted to some specific sectors because they are complements of these domestic policies. Now that we see a lot of countries going to more protectionist measures regarding, for example, subsidies to green investment and so on, this is going to be an issue.

RN: This leads us to the end of the book, which comes to a fairly dramatic conclusion. So we've been through this age of monetary policy without interest rates, but it comes to an end when we go back to a system where interest rates, and central banks using interest rates, become the primary tool of central banks. However once the historical importance of central bank credit policies in postwar Europe is recognised, it becomes natural to wonder how the reforms and rejection of these policies were linked to the process of European monetary integration. The end of credit policies in European countries has been a key phenomenon for achieving the conversion of central bank practices and the reduction of state interventionism in the allocation of capital. The EMU (European Monetary Union) was built on this ground. It's pretty clear that the EMU could not have been created unless these policies had been rejected. Which begs the obvious question if they start creeping back in again, is it compatible with a single currency?

EM: It is, as long as they're done at the European level. What I said, the sentence you just quoted, I think this is true, but this was an historical necessity. It's not a theoretical necessity. Meaning that the reason why credit policy was abandoned during the path to the EMU, whether the European countries did not manage to coordinate their domestic credit policy. So, at the time, and as it is very often the case during a process of financial liberalisation, that actually the process of financial liberalisation is a kind of easy solution policymakers that don't want to tackle very difficult issues, of strong distributive issues.

Something I quoted in the book, which I think is very important and was very striking to me was that if you look at the Werner Report – the first report pushing for the creation of the European Monetary Union in 1971 – it's pretty clear that what they want to harmonise is monetary policy and credit policy. The term credit policy appears many times in this report. But if you read the Delors report in 1988, which eventually led to the creation of the EMU, the term credit policy has completely disappeared. It was an historical necessity because I think that it would have been difficult to make the EMU without that. But that does not mean that the EMU cannot have its own credit policy today. There are already some kinds of credit policy in the eurozone. There is the European Investment Bank. There are lots of credits associated with agricultural loans. They aren't huge, but they exist. So, credit policy has never fully disappeared in Europe. The question is how do you make it possible to coordinate that at the European level with monetary policy? It's not impossible that the ECB can do that.

RN: One specific example of credit policy is governments providing guarantees on bank credit, so banks making loans with guarantees. Let's take a specific example. Just before he left office, Prime Minister Draghi, on behalf of the taxpayer underwrote a 16 billion Euro line of credit to ENEL, the large Italian utility energy company. That is not the centralisation of credit policy – that's the decentralisation of credit policy. It wasn't guaranteed by the European Commission, nor do I think was it authorised by any centralised body either. If that's the way forward at the member state level, with each member state deciding the form of loans it would like to guarantee and therefore controlling credit via guarantee, are we not witnessing the devolution of monetary policy rather than its centralisation?

EM: Yes, I think you are right on this. If this type of credit policy becomes strong at the national level without coordination, it's an issue for European credit policy as it then becomes very difficult to coordinate policy across countries. It will be a huge issue for the European Central Bank. Let's say that interest rates at the national level are actually mostly affected by government guarantee, which could be the case in the example you mention. These guarantees definitely have effects on interest rates. Then what is the ECB doing? How can the ECB influence the different interest rate across countries? That's going to be very difficult. This is already something which is a big issue with the housing sector, where the functioning of housing sectors and modality of housing finance has remained very country specific in the European Union. It's another example where unfortunately it has been very difficult to have a coordinated European credit policy.

RN: It's been a surprise to me that the European Central Bank hasn't been more aggressive about trying to stop these policies at the national level. These are policies specifically about encouraging banks to lend, because when they lend, as we said at the beginning, they're also creating money. Have you seen any evidence that the ECB is doing anything to try and rein this in? Because if they don't rein it in and it continues, then as we both just discussed there may be some significant problems coming down the line. I don't see any evidence, but maybe you're closer to it and have seen some evidence they consider this to be a threat?

EM: No, I think, as you say, this is something which is very underappreciated. Mostly because people have stopped thinking about the issues we've been discussing. It is the kind of reasoning that people have forgotten. Once you have all these kinds of policies, coordination needs to be political. I think it's still something that people have difficulty understanding.

And this is why this divergence in credit policy might create risks for common European monetary policy. It was the same time after the energy crisis linked to the Ukraine War recently when many countries started to implement some kind of price controls and this was not coordinated at all and which I think is a big problem and I think we still do not understand the consequences of that. But I think it's clearly one of the reasons why the ECB policy has had, I would say, little impact on inflation in the last year because I think it's just not coordinated with all the measures which have been taken by government. And I think people have just forgotten to think that once you start having all these kinds of measures that we have seen coming back a lot in the last years, state guarantee, price controls and so on, if you don't think about the coordination, that's not going to happen by itself, okay? It's not because you have one common situation that will be coordination.

RN: So, Eric this is why I'm telling everybody to read your book, because they need to think differently. It sounds like we should be telling the central banks as well that they need to read your book. It may be a history of post-Second World War central banking and the planned economy, but it's so much more than that. I think there exists a complete failure to understand monetary policy without interest rates. We need to get that back onto the agenda, not just for investors, but for policymakers. It sounds like your next book is going to try and do that.

EM: The next book is about the institutional part: how we improve coordination between central banks, parliaments and governments, while maintaining central bank independence. I think there are very good reasons for central bank independence. I also think this balance of power is necessary in a democracy. But people have forgotten that central bank independence does not mean absence of coordination. But I very much agree with you. Sometimes when people see this history book the first question they ask is whether we should come back to this era or not, which I think is not a good question. History doesn't go backwards. As an economic historian, I will never write a book to say we should go back to these years. The purpose is, as you say, that history helps you to think differently. I think if you now adopt only the framework we have used in the 1990s or early 2000s, it won't work to understand the world we're living in. It's not about applying the 1950s framework either. But if you start thinking differently, and think about what has happened before, you will see that it's easier to make sense of what's happening now.

RN: Eric, that sounds almost like the manifesto for The Library of Mistakes. That is why we exist, because so many things in financial history, for some reason, don't make it into the textbooks. So by contributing to this podcast, you are helping us in our mission to change the world one mistake at a time. I'd like to thank you for the book and just recommend everybody should read it. We have scraped the surface of what's in your book. It's a reframing of how we need to see things from a very different angle. And, strikingly, anybody who's been to business school in the last 30 years won't have been taught it. They will come away from business school with a view that interest rates are monetary policy, but they are not always monetary policy. You prove that very clearly in this book and I think that's something we all need to focus on. Thanks for the book. I hope you'll join us when the next one comes out.

EM: Sure It's called *Balance of Power* and, as I say, it's about democracy and central banking and comes out next year.

RN: Wonderful. Get it rushed out and the sooner it's in English the better. Thank you very much.

EM: Thank you very much, Russell.

On the Lost Art of Dying

Photograph: Brecht Denil

LYDIA DUGDALE
ECONTALK 2023

Interview by Russ Roberts

Russ Roberts: My guest is physician and author Lydia Dugdale. She is the Dorothy L. and Daniel H. Silberberg Associate Professor of Medicine at Columbia University. Her latest book, which is the subject of today's episode, is *The Lost Art of Dying: Reviving Forgotten Wisdom.* You're a doctor and you've seen a decent amount of death. Why did you write this book?

Lydia Dugdale: For several reasons. As a young doctor I witnessed instance after instance of patients dying in ways that seemed unnatural. Of course, we have incredible medical technology, and it's wonderful to use it to delay death and to heal disease, but to use the same technology to drag out the dying process in a manner also that was sort of antithetical to what both the patient and patient's families valued just seemed wrong. It seemed like we were missing something. So, that was one of the questions early on that drove me. There has to be a better way to talk about this, to talk about the way we die, to talk about the prudential use of medical technology.

Then that was coupled with conversations with colleagues, also physicians, who would say things to me like, 'I never tell my patients that they're dying because I myself am so afraid to die.' Or, they would say, 'If we talk about dying for patients, that is suggestive of the failure of medicine; and we don't want medicine to be a failure. So therefore, we should not talk about dying.' So there's a sort of professional sense of failing that meant that my colleagues often

weren't doing a good job of informing patients of their mortality, or poor prognoses.

And then, that was coupled with the fact that I grew up in a home where talk of death was quite common. Death was destigmatised out of the gate for me. I grew up in a home where my grandfather had been a bomber pilot in the Second World War and had had multiple plane crashes, had been shot down, taken prisoner of war. He was this extraordinary character who we thought for 20 years would die. So, all of the cousins would fly home every year just to make sure we could see Grandpa one last time. And he just never died. He lived until the age of 95 despite having this extraordinary contact with death so many times.

So, my grandfather created an atmosphere where we could be very frank and honest about our mortality. Death was a fact of life, and therefore we should prepare – that part of living well through life is making sure that we are ready. So that was the environment I grew up in. It made no sense to me then when I found myself in medicine that colleagues would be resistant or that the structures of healthcare would not necessarily be conducive to facilitating these conversations, which are so important.

RR: You got started with this idea – this very old idea, of Ars moriendi – the art of dying. Talk about that ancient manual for death and how it inspired you.

LD: I was puzzling over this question, really from the earliest part of my training when I was exposed to patients dying in these really awful circumstances that didn't have to be. And I wondered a couple of things. I wondered how can we start the conversation earlier? I wondered how can we empower individual patients in the context of their communities to do this well? That's when I was reading everything I could on end of life, and I discovered this Ars moriendi, a genre of literature that started in the early 1400s and circulated widely throughout the West until the early 1900s. So, for more than 500 years, this was in vogue. These really are best thought of as handbooks on the preparation for death. The central thread of the Ars moriendi was tying dying well to a life well lived.

In different cultural groups, in different religious or nonreligious groups, this might take on different forms. To die well might mean, in certain contexts, to die full of hope or to die full of generosity, of spirit, patience – these classical virtues. And so, to mitigate dying poorly, you have to cultivate that sort of character, those sorts of habits over a lifetime. So, that was what the genre was about. When I discovered this, I thought, 'Wow, this is really a tool for empowerment of individuals and their communities.' This is what we need in healthcare. We need a way to talk about death that individuals in the context of their communities can do together.

RR: What is powerful about this is that the current system is a conveyor belt. The default is resuscitate. The default is prolong. And the desire of almost all the participants, whether it's the doctor who doesn't want to inform people that it's over or the patient who doesn't want to confront their own mortality, or the family members who will feel horribly guilty if they haven't used every single possible technique – the default is resuscitate, one more chemo, one more pill.

What's powerful about your book is you're saying: you should go into this – think about it now. Don't think about it later. Of course, once you start thinking about it now, it leads to lots of other thoughts. But the idea that you should have some idea of what you're getting yourself into because if you've never seen a modern hospital in America with the full array of every possible measuring device, tool, assisting thing – and it leads to a belief that it's never over. A good friend of mine, an emergency doctor, says, 'When you tell people that there's nothing left, they literally can't believe it.' 'Well, there must be another pill, a different treatment.' And he said, 'No. There's nothing left. Your father's going to die, and that's part of life.' And, it's very hard for a modern American, and other cultures that have similar techniques, to accept it. And I think part of your goal in your book is for people to confront it.

LD: That's right. I would say not necessarily to accept it. But to acknowledge it, to confront it, to walk toward it, to prepare for it. And, that's what the Ars moriendi genre did so well – it sort of put it on the table.

The closest we get to it now, frankly, is estate planning. That's the sort of closest we get in the modern era to anticipating and preparing for death. But we really need to be critically engaging the hospital, the technology of the hospital, to think critically about how to talk to our care team.

There's all this other stuff that's a part of living and dying well, such as legacy. How do you want to be remembered by your children and grandchildren? Were you the greedy, cranky, aloof old person? Or were you engaged, investing in the next generation, practicing and demonstrating generosity and humility? That's also part of living and dying well.

RR: Nobody on their deathbed wished they'd spent more time at the office. It is one of my favourite expressions. And I will say that when I go to funerals – and I always encourage people to go to funerals; I

think it's a good thing for the survivors, and it's good for you – that when you're at the funeral and you're hearing this incredible litany of great behaviour, nobody ever says, 'My dad was an aloof, cranky, old guy.' They talk about how wonderful they were. And I'm thinking, 'I'm never going to get a funeral like this.' And it does spur good behaviour.

LD: That's great. One way that the Ars moriendi genre was described is as a great drama where the dying person is the central actor in this great drama, and all of the community members are understudies. So, in any big show, the lead actor always has one or two understudies. Well, really, all of us are meant to be understudies for that lead role because all of us one day will play the lead role. So, all the more important, then, to attend funerals, to support grieving families, etc., because one day we will be in that role.

In the book, I make a case for the need to address our sort of existential angst, our death anxiety. I've cared for many patients who've shown up and said, 'I'm a million years old and I realise I have no idea what I believe.' I've literally had patients walk in and say that and that. It's good that they're acknowledging that while they're able to think through those questions, because going to the grave with no kind of reconciliation with one's eternal beliefs or religious beliefs does really result in dying with quite a lot of anxiety.

As you know, the book is not prescriptive. I'm not telling people what to believe. I think the great traditions, the great religious traditions in the world have wrestled with these questions of meaning and purpose and what happens when we die or what doesn't happen when we die. There are well-thought-out answers for this. So I'm not attempting to tell people what to believe, but, to do that work now while it is possible. Finding one's peace with the Divine, as it were, I think is really important both to living and dying well.

RR: I think when you say, as you do, to try to come to terms with it, a lot of people who don't have a faith tradition or a faith practice will say, 'But, I can't pretend to believe something I don't believe in. It would have been great if I believed in God, but I don't.' And I think it's a misunderstanding of what religion is about and the role it can play in your life. Faith is not a zero-one switch that's on for some people and off for others. I do think people have certain abilities to feel spiritual things – and it varies by person – but it's certainly possible to read about and explore and put your toe in the water of a faith tradition without being a card-carrying believer. And even so-called card-carrying believers are filled with doubt, including myself. I loved in your book when you say that this Ars moriendi is for nonreligious people. And I think modern atheists might say, 'Well, there weren't any unreligious people in the Middle Ages. Everybody was religious. They all believed in God, thought they were going to die and go to heaven. Or hell.' I just don't think that's true. It's a complicated situation.

LD: It's very complicated. In fact, one of the ways that the earliest versions of the Ars moriendi said you died poorly was to die full of doubt. So, a decent part of the earliest handbooks were to help the dying person think through what he or she believes. What is it that my priest has taught me, my clergy has taught me? Do I believe that? Can I walk through and affirm those beliefs?' Then, if the dying person couldn't, the community still doesn't want the dying person to die in this state of doubt. So, there were prayers for the community to utter on behalf of the dying, in a sense to be the hope for the dying person, to speak words of faith on behalf of the dying person. Because, really, we all live and die best in community. So, the community then helps uphold that person in his or her weakness.

RR: The community part is very important. Why don't you talk a little bit about the power of the bedside and hospital versus home, alone versus lonely? There's something very sad about somebody dying alone and lonely. The combination is horrific. But if it's only alone, it's not as bad – meaning if you have loved ones in your life who care for you, and if they're not literally at your bedside, it's still a good thing it seems to me.

LD: That's right. Central to all versions of the Ars moriendi is living well in order to die well, and vice versa. A second thread is an acknowledgement of human finitude. Then the third thing that is really absolutely critical is the role of community. Human beings are by nature relational beings. No one thrives and flourishes in isolation. The same is true in dying.

In the book, I do distinguish between dying alone versus lonely dying. People who throughout their lives, for example, hate to be a burden on others – which, parenthetically, I would say we need to practice being a burden on others and we need to practice receiving the burden that others impose on us. This is one of the reasons why practicing hospitality is so good and we should do it more in the modern era, because it's an imposition on the host to have others come in and all that that entails.

How is it that we can practice being a burden on others? I confess that I really like my independence and like not to be a burden on others. But that's not how human beings do 'human being' best. We really are meant to be in relationship. So, people who

don't like to be a burden on others will often wait until everyone leaves the hospital room or wait until everyone goes to bed at night to allow themselves to die. That's really common. We do see that all the time. That's not lonely dying, though.

One thing I say to people is: Do this thought experiment. Most people say they want to die at home and most people die in institutions. That's true in the United States. So, think about who you would want to surround you on your deathbed, and then ask yourself what the state of those relationships is now. Because, if dying well is very much linked to living well and you know now who you want to be with you at the end, why not nurture those relationships now? Invest in those relationships now. Reconcile now, so that your living is so much richer; and then your dying will be that much richer as well.

A final thing I want to say is on the question of loneliness. I think Canada is giving us much to be concerned about on the issue of euthanasia. In 2021 in Canada, the last year for which we have comprehensive data from the government, the Canadian government reported that more than 1700 people said that they were being euthanised because of loneliness. This is from the Canadian government's annual report from 2021: 1700 Canadians euthanised for loneliness. We can treat loneliness many ways, but physician-assisted killing is not the way that we want to do that. Rather, we should really look around us and invest in our families, in our communities, see who is lonely and invest in them, practice hospitality.

RR: I think we often, speaking for myself, neglect the power of friendship and connection. So, if there are people out there in your lives, folks who you've lost touch with or are sparring with, maybe put down the weapons and see if you can have a meal or a cup of coffee with them and do some repair work.

Let's talk a little bit about the power of ritual. You spend a significant chapter on ritual and, of course, death is – every culture, every religion, ritual plays an important role. It's not untouched. It's a huge thing. Talk about why it's important and what you've seen in your own practice of people dealing with death that way – with ritual.

LD: I think I'm a product of a lack of tradition in some ways. I grew up in the Christian church, but not a lot of ritual, no liturgy, no prayers, no formality. As an adult, I discovered some of the richness of my tradition and was floored at how carefully, for even thousands of years, some of the words of these prayers or the texts that were to accompany momentous occasions such as dying and death, sickness and death were so carefully crafted. That made me realise, 'You don't need to a funeral and play the Beatles and read some random poem. The work has been done.' If people want to reinvent the wheel or invent a new wheel, that's fine, but the work really has been done; and it's so rich and so deep and there's so much across the world's traditions, the world's religions that it's worth diving into. As you know from the book, I am very struck by Jewish death rituals. I worked with a Jewish chaplain from my hospital when I was writing the book, and she was very gracious to teach me so much. But she said something like, 'Of all the things Jews do well, we do death the best.'

> "Human beings are by nature relational beings. No one thrives and flourishes in isolation. The same is true in dying."

RR: Yeah, we're good at death–

LD: I really was so struck because, for example, the mourning process of first 24 hours, get the body in the ground; the one-week shiva; one month, one year, that maps on – maybe it's because of the influence of Jewish practitioners on psychology and psychiatry. We think of normal grieving as being up to a year. And that's exactly the prescription – in the medical world, we think of that – but that's also the prescription that comes through Jewish expectations for mourning.

As you know, the washing of the body – women washing female bodies, men washing male bodies

– and the ritual washing and preparing the body to be laid to rest that is done so beautifully in traditional Jewish communities is compelling. For me, that was one of the most extraordinary things I discovered in the process of writing the book.
Volunteer members of the community will prepare the bodies. This society of volunteers is called the Chevra Kadisha. In the ritual washing, the members of the community who are washing the body will sing essentially love poetry – it's from the Song of Songs, from the Hebrew scriptures – to the body, calling the body by its Hebrew name. It's just so extraordinary – so tender, so human, deeply human, so intimate. What a wonderful gesture of a community to a member of its community who is now being prepared to really be laid to its final rest and depart the community in a sense. I's just extraordinary what's out there, and I encourage people to dive in.

RR: As you point out, the body is treated with respect. It's covered, except for the part that's being washed. There's no talking, there's no chit chat. In this ritual, there's the utmost respect for the deceased, to the extent that you don't talk about mundane things, at least as far as I know.

And if you're not a believer, you'd say, 'Well, that's ridiculous. The person is dead. Doesn't matter what you talk about in front of them, they're not there.' The idea of it, though, is to create reverence for human beings who are alive, because if you're respectful around a body that has no life in it, think how respectful you should be around a body that does have life in it. And if you are doing this activity, you inevitably are forced to reflect on your own mortality. It's a very powerful thing.

Let's close with a question of current hospital. Is there something that you would single out – and you make a lot of suggestions in the book, and we've talked about many of them here: build your community, build your rituals if you can in advance of your death, live well so that you can die well. It's a beautiful, inspiring book. But on the practical, policy side of the norms that create that conveyor belt, are there things that you would like to change that you feel would have a minimal cost in terms of the human impacts?

LD: I'm a primary care doctor, so I will often counsel my patients when they go into the hospital, warn them that: number one, doctors are poor prognosticators. But, number two, doctors often have a lot more information than they give you. There are all kinds of reasons for that. So, when someone, especially in advanced age or poor physical health, is thinking about a major intervention – chemotherapy, a big surgery – really pushing the medical team for a sense

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of the efficacy of this intervention. The impact it will have.

I think classically of a patient that I cared for as a medical student who was in her nineties. They discovered a tiny colon cancer, and they decided to take out part of her colon. Major surgery. For someone in her nineties, for a cancer that is unlikely to kill her. But the family wanted that cancer out. I just remember thinking, 'Is she even going to make it off the table?' 'Is she ever going to recover and be able to walk with her walker again?'

So, I think pushing doctors. Patients sometimes will say, 'Well, if this were your mother, what would you do?' Some doctors don't like that question. I think it's a great question. We're all stuck in this place where medicine has become increasingly consumeristic, in the United States in particular. Patients expect to be treated like consumers, 'Just give me the information and I'll decide. I will choose,' and doctors are now abdicating their responsibility to teach their patients. The word 'doctor' in Latin means teacher. So, we've abdicated that. Because patients, they want autonomy. They want to choose. But they aren't trained like we are. They haven't seen the thousands of cases like we have. So, it really behoves patients to say, 'No. Truly, what is wise in this situation? What would you do for your family member? What would you recommend?' And, if you feel like you're not getting good advice there, push the doctor a little bit more and/or seek a second opinion.

RR: My guest today has been Lydia Dugdale. Her book is *The Lost Art of Dying*. Lydia, thanks for being part of EconTalk.

LD: Lots of fun. Thanks so much, Russ.

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