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THE PODCAST READER

WISDOM AND INSIGHTS FROM OUTSTANDING LONGFORM PODCASTS

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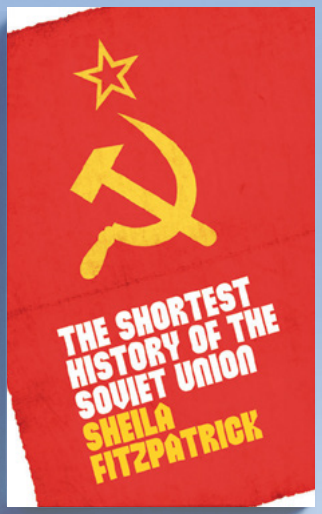

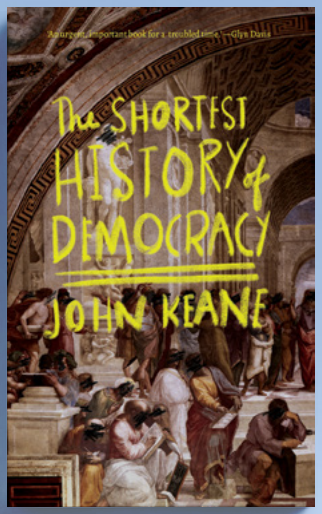

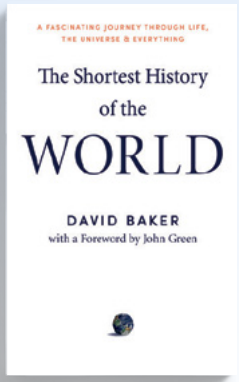

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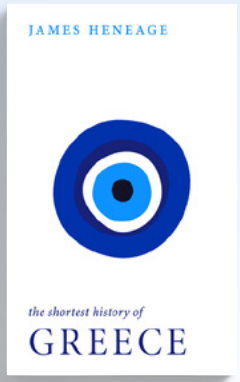

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THE PODCAST READER

Welcome to Issue Nine of *The Podcast Reader,* a more permanent platform for outstanding longform podcasts. Whilst audio podcasts can be great, we feel it is too easy to be distracted when listening to them. Our curated transcripts make it easier to follow important ideas and highlight key points. In a world of digital distraction and ever-shorter attention spans, we are proud to provide a more reflective platform for important ideas.

In this issue we present full transcripts from six longform podcast interviews, and edited highlights, or 'Podcast Bites', from a further two episodes. We cover four broad categories of content:

How to improve society:
William MacAskill on effective altruism and how to better consider the future
Jonathan Haidt on overprotective parenting and the dangers of social media
Thomas Piketty on economic history and the politics of inequality

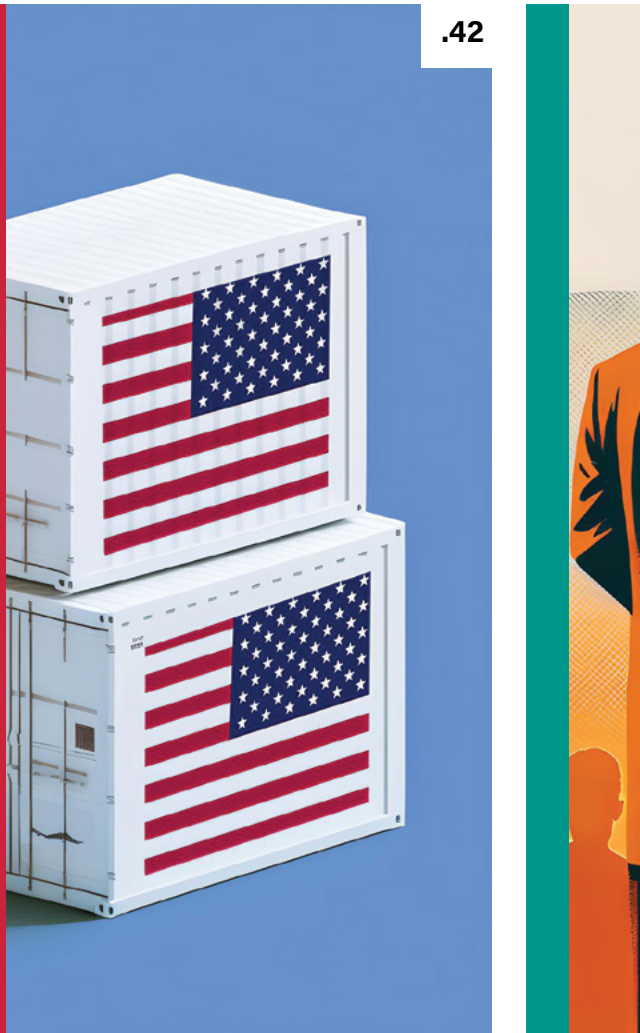
How to improve yourself:
Annie Duke on using kill criteria to make better decisions
Laurie Santos on mental health, happiness and good relationships

Frontiers of knowledge:
Chiara Mingarelli on using astrophysics to better understand black holes

Just fascinating:
Peter Robinson on the art of political speechwriting
Niall Ferguson on history, death and reading

Each issue of *The Podcast Reader* aims to present content from the arts, entrepreneurship, history, public policy and science. In short, a cross-section of ideas that shape our world. Reader feedback is essential to help us learn and improve, so please don't hesitate to share your thoughts about the magazine at hello@podread.org.

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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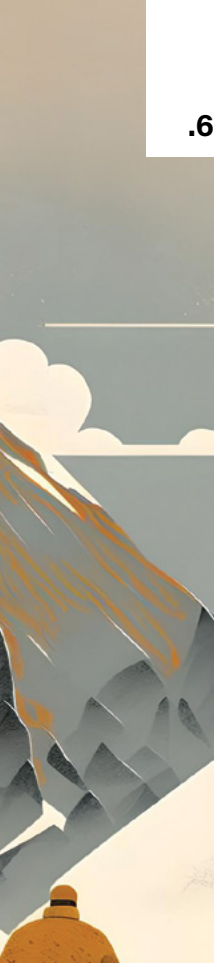

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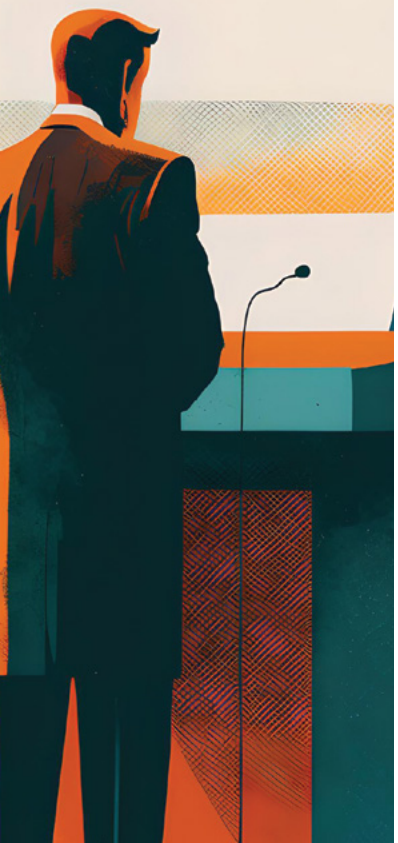

“So the speech had this strange quality. There were serious people, professionals, to whom this seemed all wrong, right up until the moment they heard it, and then it seemed right.”

PETER ROBINSON

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FEATURED GUESTS

Annie Duke is an author, corporate speaker and decision-making consultant. She is a Special Partner at First Round Capital Partners, and a former professional poker player. Her most recent book is *Quit: The Power of Knowing When to Walk Away.*

Niall Ferguson is the Milbank Family Senior Fellow at the Hoover Institution, Stanford University and senior faculty fellow of the Belfer Center at Harvard University. He is managing director of Greenmantle. His latest book is *Doom: The Politics of Catastrophe.*

Jonathan Haidt is Professor of Ethical Leadership at New York University Stern School of Business. His latest book is *The Coddling of the American Mind: How Good Intentions and Bad Ideas Are Setting Up a Generation for Failure.*

George Osborne was UK Chancellor of the Exchequer from 2010 until 2016. He is currently Chair of the British Museum and Chair of the EXOR Partners Council. He studied modern history at Oxford University.

William MacAskill is Associate Professor in Philosophy and Research Fellow at the Global Priorities Institute, University of Oxford. His academic research focuses on effective altruism. His latest book is *What We Owe The Future.*

Chiara Mingarelli is Assistant Professor of Physics at the University of Connecticut and a research scientist at the Flatiron Institute Center for Computational Astrophysics. Her research focus is gravitational-wave astrophysics.

Thomas Piketty is Professor of Economics at the Paris School of Economics. His work focuses on public economics, in particular income and wealth inequality. His most recent book is *A Brief History of Equality.*

Peter Robinson is the Murdoch Distinguished Policy Fellow at the Hoover Institution. He hosts Hoover's video series program, Uncommon Knowledge. His latest book is *How Ronald Reagan Changed My Life.*

Laurie Santos is Professor of Psychology and Head of Silliman College at Yale University. Her research focus is the evolutionary origin of human cognition. She is host of *The Happiness Lab* podcast.

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The Power of Quitting

Why you need kill criteria

ANNIE DUKE
CAPITAL ALLOCATORS

Interview by Ted Seides
Illustration by Vaughan Mossop

Ted Seides: Every time we talk about one of your books, you and I agree that neither one of us is going to write another book. So here we are again. What was the path to coming up with the idea for *Quit*?

Annie Duke: After the last book, I really did say that I wasn't going to write another book. What I realised though was that sometimes you need to write a book. I think that was true with my first general audience book, *Thinking in Bets*. It was something that I'd been thinking about for a decade before I actually made the decision to sit down and write it. That was something that had been brewing in me for a long time. When I wrote *How to Decide*, it was meant to give people a practical way to implement *Thinking in Bets*, but I wouldn't say it was a book I had to write. It was a book that I felt was important to write for readers in relation to *Thinking in Bets*.

After that, I was really like, 'I'm never writing another book again,' because it's such torture to write a book. It's a lot of work. It was probably two months later that I asked you to get on a Zoom with me to talk about this topic of quitting. So, what happened? How did that happen so quickly? It's a good example of overconfidence.

Basically, here's what happened. I was doing podcasts discussing *How to Decide*. There is lots and lots of material in *How to Decide*. As you roll around to chapter seven, which is about how to make faster decision – when is it okay to sacrifice quality for time – there's a small section on quitting in the sense of optionality. Regarding what Bezos or Branson say about one-way or two-way door decisions – that having a two-way door decision, one that you can reverse, or let's call it quit, makes it so that you just have more margin of error on the initial choice.

During these podcasts, I kept directing the topic over to this little section. Nobody really wanted to ask me about it. I just made them talk about it. I paid attention to that, and said, 'Well, this is a very weird thing that's happening because there are all sorts of other things that I could talk about in this book and I really want to talk about this topic.' Then it just became a brain worm. Going beyond just the issue

of optionality, I started thinking about all of the work in cognitive science that shows that quitting is really hard. We're not very good at it. Thinking about my life in poker and how incredibly important quitting, aka folding, is in terms of the skill elements of that game and how much elite poker players really know that you have to be able to cut your losses. In fact, I would argue that most of the skill would go out of poker if you didn't have the option to quit and couldn't get good at exercising that option. Of course, you, as an investor, know that. Optionality or liquidity, it's just so highly valued. So, I couldn't let that go, and I continued thinking about it.

Then I moved on to this issue, which is that I think that grit has captured the popular mind. If you're gritty, you're showing character. It's a virtue. Then quitters are losers. I said, 'Well, that's absurd.' So, I started calling people to see if they were as excited about the topic as I was. My agent was my first call. You were one of my very first calls. I called Michael Mauboussin. I also got in touch with Danny Kahneman to gauge whether he thought this was something worthwhile exploring? What I discovered was that all the people that I connected with on the topic were honestly as excited as I was about it. At which point I thought, 'Ugh, I think I need to write this book.'

TS: What's the main conclusion that you drew after being compelled to dive into the research leading to yet another book? Which I believe will be another best-seller.

AD: We think of grit as a virtue and quit as a vice, but that's not true. They're the exact same decision. By definition, if you choose to stick to something, you're choosing not to quit it. If you choose to quit something, you're choosing not to stick with it. We need to understand that all the skill is in telling the difference between the two. It's all about context. One is not a virtue and one is not a vice. They're the same decision. That's the skill that we need to develop. When is it worthwhile to stick to things and when isn't it? Here's the thing that I want people to really, really deeply understand: usually if you quit at the moment that it's objectively correct, it will feel like you're quitting way, way, way too early. That's the thing that we need to watch out for. As human beings, we generally stick with things too long, and life's too short for that.

TS: You mentioned that grit is this heroic thing that people aspire to. I love some of the stories that you picked out where grit wasn't necessarily the best answer. Why don't you dive in maybe with that initial story in the book, which is such a good one?

AD: We all say things like, 'Quitters never win and winners never quit.' But then it's so easy for me to just give you an example, which is so in your face that you go, 'Oh, wait a minute, maybe quitting's an okay thing.' Let's start our conversation on the top of Everest because climbing Everest is obviously an amazing example of grit. You're super uncomfortable. You've got to climb up and down, up and down, up and down. It takes months. You're freezing cold. You get frostbite. Yet, you continue up to the summit. If I wanted to write a book about grit, I might also start it on the top of Everest, so let's start a book about quitting on the top of Everest as well.

This particular story is about three climbers, Dr Stuart Hutchinson, John Taske and Lou Kasischke. They're in a group of eight climbers. There's a few climbing Sherpas, and there's the expedition leader. They become friends. Down at base camp, they get given turnaround times. Turnaround times, simply put, for any day's climb, there's some point in the day where no matter where you are, whether you've reached your final destination or not, you have to turn around and go back to the camp that you came from.

The way that climbing Everest works is you start at base camp and you climb up and down to Camp 1 a few times because you're trying to acclimate. Then you climb from Camp 2 to Camp 3 a few times and so on. On summit day you're going from Camp 4, which you usually leave around midnight. You go to the summit that day, and then you try to get back down. So, these turnaround times basically say at time X, no matter where you are, whether you've gotten to the summit or not, you must turn around. The turnaround time on summit day is set at 1.00 pm. This is very clear to everybody.

The reason why it's set at 1.00 pm is that in order to go up to the summit and back down, you have to navigate the Southeast Ridge, which is very narrow and very dangerous. You have to go in a single file. If you fall, you're going to fall 8,000 feet into Nepal or 12,000 feet into Tibet, so you probably don't want to do that. One of the reasons that you leave at midnight from Camp 4 is so that you get to the Southeast Ridge in daylight. One of the reasons that you're supposed to turn around at 1.00 pm no matter where you are is because if you get to the summit past 1.00 pm there's too good a chance that you're not going to get back to the Southeast Ridge in daylight.

Most of the dangers are on the descent. That's when most people die, coming back down, when they're tired. You don't have as much adrenaline, and obviously your oxygen is low. All those things present grave dangers to climbers. So, they're given the turnaround time. So now it's summit day. They have got the turnaround time of 1.00 pm. They leave at midnight, and it's a particularly slow day on the mountain. As you might know, climbing Everest started to get super popular in the nineties, which is

> “... usually if you quit at the moment that it’s objectively correct, it will feel like you’re quitting way, way, way too early.”

when they happened to be climbing the mountain, and so there were more and more people trying to get up to the summit. There’s only a single rope that you can go up, and so you can sort of get in a traffic jam.

They’re in a little bit of a traffic jam, and it’s getting on towards about 11.30 am. Their expedition leader actually comes up from behind them. Hutchinson says to the expedition leader, ‘Hey, it seems like we’re moving pretty slow. How much farther until the summit?’ The expedition leader says, ‘I think it’s going to be about three hours.’ He then goes past them and continues up the mountain.

Hutchinson holds Taske and Kasischke back, and says, ‘I think we have a problem. It’s just about 11.30 am. Our expedition leader just told us that it’s going to be three hours until we get to the summit. I can do some math. That seems like we’re going to get there at 2.30 pm, which is going to be well past the turnaround time. So, it seems to me, given that we know now that we’re not going to get to the summit by 1.00 pm, we ought to turn around now. Kasischke was a little reluctant. Taske agreed right away. Kasischke was actually on his seventh summit, that’s climbing the seven tallest mountains in the world, so obviously he wanted to finish, but he got convinced pretty quickly. They turned around and they lived.

Now, it might not surprise you that you don’t know who these guys are because that’s kind of a boring story. Nobody’s going to make a movie out of that story. Where is the hero? There are three guys. They followed the rule. They went back to base camp. They lived. Yawn. But here’s the thing that’s amazing about this story. They climbed that mountain in 1996, a year that was chronicled by Jon Krakauer in *Into Thin Air*. Not only that, they were part of Rob Hall’s expedition. Rob Hall famously, going to the top of the mountain, arriving at 2.00 pm, waiting for Doug Hansen, one of the other climbers in his expedition until 4.00 pm. Doug Hansen got to the top at 4.00 pm, well past the turnaround time, collapsed and basically died immediately. By that time, Rob Hall had been up there so long that he didn’t have the strength to come back down and he also perished on top of the mountain. Guess what? He was the expedition leader who told Taske, Kasischke and Hutchinson that it was going to be three hours to the top of the mountain.

This was a year when a bunch of people died. A lot of people did not follow that turnaround time, but these three people did. They turned around, they lived to climb many more mountains, spend a lot of time with their families, because they actually followed a quitting rule. In the context of understanding what happened and the disaster that occurred, we should understand why quitting is so important. Yet, those quitters are totally invisible to us. But if anybody’s read Krakauer’s book, or seen the documentary or watched the movie, they’re in there. In fact, Krakauer says they were the best decision-makers on the mountain that day because they turned around when they were supposed to, and they quit at the right time.

I just think that that’s such a good example of two things: one, we don’t see people who quit. That’s the best-case scenario. Or we see them as quitters, which is an insult. The heroes of the story are people who had the exact same information as these three climbers, and yet continued on even so to great disaster. I think that’s the whole shebang right there.

TS: You’ve touched on the case for quitting, this idea that there’s optionality, there’s more time. What are the key things on why learning how to quit, learning how to change your mind, is so important?

AD: I just want to say something really clearly. I think everybody should go buy *Grit*. I think everybody should read Angela Duckworth’s work. I think it’s amazing because grit is really good for getting you to stick to hard things that are worthwhile. The problem that I’m trying to tackle with *Quit* is that grit also gets you to stick to hard things that are not worthwhile. The key is to tell the difference between the two. Figure out as quickly as possible when it’s not worthwhile.

Pretty much any decision you make is under the influence of some form of uncertainty. I’ve spent pretty much my whole life dealing with how you make decisions under uncertainty. Uncertainty comes in two forms: one is that the world is stochastic. There’s just the influence of luck on the way that things turn out, completely independent of the decision quality. You could make a decision that’s going to work out 95 per cent of the time, and by definition that means you’re going to observe a bad outcome 5 per cent of the time. Sorry for you. You don’t have control over when you observe that 5 per cent.

Then the second influence of uncertainty is hidden

information. That for most decisions that we make, we know very little in comparison to all there is to be known. So those are big problems in decision-making. Whenever we choose to start something, in other words we make a choice to go forwards in some way or to choose some sort of path, we're making that usually under extreme uncertainty where we may find out things later. We say this all the time, 'If I had known then what I know now, I would've made a different choice.' That's that feeling of the influence of hidden information.

So, we have this really big problem. We have to make decisions when we don't have all the facts, when there's lots of luck that's going to influence the way it's going to turn out, and that makes decision-making really hard. But, lucky for us, we have the option after we find that new information out to change our minds and to do something different. That option to quit is so valuable. That's the thing that, when I was talking about the other book, I wanted to tell people all the time is, yes, decision-making under uncertainty is really hard, but you have optionality. When you learn the new information, when you discover how luck is influencing the outcome of the thing that you chose to do, you can do something different. You can go back to previous options that you might have rejected in the past. You can go to new options that you hadn't even considered yet. This is what gets us out of that bind. That right there is the reason why quitting is so incredibly valuable.

The way that I try to put it is, imagine this, imagine if the first person you ever dated you had to marry. How hard would it be to make the decision to go on a date? How could you ever go on a date? It's the option to say, 'That date wasn't very good. I don't want to go out on another date with you,' that allows us to go out on dates. It's not just dates. We can take a job because maybe if we don't like it or it turns out the boss is toxic, we can walk away from it. Some things are harder to quit than others, but you can quit being married, for example. Now, that's harder to do, so you should probably have more certainty around who you marry than who you date. But in either case, you do have an option to walk away.

TS: Lots of good reasons to understand why it's important to be able to change paths. You also hinted in that Everest story that there are a lot of obstacles in being able to quit effectively. I'd love to hear what you learned from the research you did that went into this book about what some of those obstacles are.

AD: I'm going to give the top line first, and then we can dig in as you want into some of the details. In a nutshell, it turns out that the way that our cognition works, is that it's very hard for us to walk away from

"But, lucky for us, we have the option after we find that new information out to change our minds and to do something different. That option to quit is so valuable."

things. There are a lot of biases. Biases that you might think are independent but that you can pull a single thread through that have to do with an inability to quit.

The decision to start things is made under uncertainty. We can do that because we have the option to quit. But here's the problem. Exercising the option to quit is also a decision made under uncertainty. Where it gets really hard is that you're in the middle of something, you're doing something, you're climbing Everest, and you have to make some sort of forecast of the future because in general the right time to quit is before you're already at the summit and it's 4.00 pm. You're supposed to quit a lot earlier than that. What that means is that basically if you get to a point where you're very close to 100 per cent certain that you're supposed to quit, it's probably already too late. As Richard Thaler said to me, the only time that we're willing to quit is usually when it's no longer a decision. It's like you already fell into the crevice. What are you going to do? It's like your start-up is already out of money.

So, at that point you kind of know you don't have any other choice. You have to quit. But by then it's well past the time that you should have quit. If we think about when you should actually quit, it's when your expected value good's negative.

Let's go back to Hutchinson, Taske and Kasischke.

At the moment that they figured out that, 'Well, I'm supposed to turn around because my expected value looks pretty bad here,' which they knew because of the turnaround time that had been set, they have tons of oxygen. They're not in a dangerous place on the mountain. There's no snowstorm. Other people are continuing ahead of them. They're amazing. They're going against every single instinct that a human being has, and they're turning around. They really are the heroes of the story because they were able to look and peek into the future in a way that other people weren't able to and make the decision to turn around. At the moment that it's correct, it will be made under uncertainty. It's going to be probabilistic. You're never going to be 100 per cent sure that you're supposed to quit.

But the only way to know how the thing you're doing turns out is to stick with it. We're very uncomfortable with uncertainty. The only way I can know for sure is to grit it out, to persevere. Then I'm going to find out for sure. Also, we worry that other people are going to think we gave up too soon. We're worried that other people are going to think we're not gritty, that we lack character. They're going to call us quitters.

TS: You mentioned the thread of all these behavioural biases. And how other people are going to perceive us is certainly one. You mentioned opportunity cost. What are some of those other threads, and how do they weave together in the things that create obstacles to effective quitting?

AD: Let me just list them off, and then you can tell me what you want to talk about. There's sure-loss aversion. Now, I just want to be clear that's different to loss aversion. Both of these come from Kahneman and Tversky. Loss aversion is not wanting to start things for fear of the losses you might incur later. So, let's think about loss aversion as something that stops you from starting. Sure-loss aversion, as Kahneman says, is not wanting to turn a loss on paper into a realised loss. Loss aversion stops us from starting. Sure-loss aversion stops us from stopping. So, there's sure-loss aversion.

Then there are all these things that go under this rubric of escalation of commitment. An escalation of commitment, simply put, is we have the intuition that when we get bad news that we'll stop doing what we're doing, and actually we don't stop when we get bad news. We actually double down. We escalate our commitment to the cause. What goes under that umbrella – which is more of a motivational explanation – would be a lot of the cognitive explanations. We're going to put sunk-cost under that rubric and the endowment effect. Things we own we value more than things we don't own. Omission/commission bias, status quo bias, ambiguity aversion. Mental accounting actually becomes a thread that goes across here, which is that the way that we sort of think about losses and gains as not being fungible across all the things that we're doing. We open accounts for things that we start, and we don't like to close those accounts in the losses.

Then we have all of these things that have to do with identity, internal and external validity, cognitive dissonance, the desire for consistency or to be seen as consistent. Then the opportunity cost piece doesn't stop us from quitting. Sunk-cost makes us stick to things that then make us incur opportunity costs. Then we have all of this stuff around goals, that goals are graded as pass/fail. They cause this myopia. Progress along the way doesn't matter. So that also will stop us from quitting because it gives us a target where, if we don't get to the finish line, we failed.
It's the whole of behavioural science. Once you look at it through the lens of quitting, and I think that's why I got so excited about the topic, was that you start to think about over-optimism. Overconfidence. You start to think about so much of what people know from *Thinking Fast and Slow.* From this exciting world of behavioural economics and behavioural psychology.

TS: One of the most interesting things that you mentioned is this problem of identity, which certainly hits all of us in money management. We tell someone about the positions we own, and therefore, we own those positions and make them less likely to sell. What's your favourite anecdote to describe that problem?

AD: It's about a retail chain called Sears. You might have heard of it ... Sears is founded in the late 1800s. It's a catalogue company. I think the original one had 512 pages in it. This was when the mail routes were just opening up, so all of a sudden people in remote areas could get stuff that people in the cities could get, like bicycles. They sold just about everything, from bicycles to kitchen chairs. I think you could buy cars in the catalogue. They were incredibly successful.

Then all of a sudden right around the thirties, cars become really big and people become much more mobile. What they find is that this is kind of eating into their catalogue business, so they start to open retail locations. Just so that you understand how successful Sears ends up being as a retailer, at one point they represented 1 per cent of the total GNP of the United States. So, they're big.

But then we also know the decline of Sears. It starts faltering in the seventies as these other bargain retailers start coming along, like Walmart and Kmart for example. That starts to eat into Sears's business, they're getting squeezed out. You've got the high-end retailers like Nordstrom and Neiman Marcus that are kind of pushing them from the top. Then you've got

the Kmarts, Walmarts, and eventually the Targets, that are squeezing them from the bottom. Their share of that market starts getting smaller and smaller until, in the beginning of the nineties, they actually end up not being the number one retailer anymore for the first time ever. Eventually, as we know, they declare bankruptcy and they go out of business. That's the story of Sears that everybody knows.

But there's another story of Sears, which I find much more interesting. It's not as Sears the retailer, but Sears the financial services company. Most people don't know that Sears was a financial services company. They start the banking division when they just have the catalogue because they were offering their consumers credit. But when all of the cars start happening and they open those retail locations, they realise, hold on a second, people drive their cars to our retail locations. So, they open up a new business to sell car insurance to all of these new car owners. That business is called Allstate Insurance. Now, Allstate ends up branching out obviously and ends up becoming the largest seller of all sorts of liability insurance: home, auto, fire, life, and so on, and that goes on for a long time. So, they found that in the 1930s. They continued to own Allstate for a very long time.

Then in the seventies they decide that this financial services business is really doing really well, and they acquire another company called Dean Witter. They also create their own credit card called the Discover Card. That's pretty big. Then they also acquire Coldwell Banker. Let's think about the worth of those companies. Dean Witter and the Discover Card gets bought by Morgan Stanley. At the time, it represented 40 per cent of the worth of Morgan Stanley. So, we could calculate whatever Morgan Stanley is worth, and that's whatever that is. Then you have obviously Allstate, which is worth billions. Coldwell Banker ended up merging into Realogy. But I think that their market cap is $2.2 billion or something like that, and I think Allstate is worth something like $40 billion. It's a lot. So, we've got billions and billions of dollars of worth from the financial services industry.

I don't know about you, Ted, but I'm like, how did Sears go broke? That seems very strange because they owned a lot of stuff, so that doesn't really make any sense. Here's what happens. Remember, that starting around the eighties, the profits from the retail business start to falter and decline. Eventually, they start to lose money on it. At some point, the board of directors have to make a decision about what they're going to do about this faltering business. Now, from the outside looking in, it seems pretty obvious what your choice should be. 'Why don't we get rid of this stupid retail business because look at our financial services business? We have Dean Witter, we have Coldwell Banker, we have the Discover Card, we have Allstate. Let's just go with that because that's just making money hand over fist, and let's get rid of this retail business, which is losing money.'

But the board of directors puts out a statement saying that, 'What we've realised is that we have to get back to our retailing roots.' They essentially say, if we're thinking about it from an identity standpoint, that Sears's identity is retail: 'It is who we are. We are retailers.' Certainly, from the standpoint of the public, that is how they knew them. Because I don't think you knew this, I certainly didn't know this before I did research for the book, that they even ever owned Allstate. Why would I have known that?

What do they do at this point? This is in the nineties. They spin off Allstate in its own IPO. They sell off Coldwell Banker. They sell off Dean Witter and Discover. They do get back to the retailing roots, which are losing money. And that's it. That basically becomes the end of Sears. That seems so bonkers. How could you do that when it's so clear that you have this thriving business? Why would you sell these thriving businesses in order to raise capital to try to save something that's doing so poorly in the face of a very competitive market? It's because of what they said, 'We had to get back to our roots.' Because the hardest thing to quit is who you are, even for Sears.

TS: We have all of these things working against us, which does remind me a lot of *Thinking in Bets*. Fortunately, in *Thinking in Bets*, you gave some prescriptive things about how to make better decisions. Again, here in *Quit*, you have laid out some of the things that we can do to get better at decision-making around this all-important quit decision. I'd just love to hear some of your thoughts and some of those prescriptions.

AD: Sure, but first I want to tell people a story about a quitting disaster, just not quitting when you should. If we understand this particular story, I think it will help us understand what we can do to be better. This is a story about the California bullet train. Sadly, it's not fiction. This is a real-life true adventure. For those not familiar, the California bullet train is a very audacious project in California. They started thinking about it, I think it was about 2008. The idea was to build high-speed rail, like in Japan or other places, that would connect San Francisco and Silicon Valley to LA and San Diego to the south. The reason that they wanted to do that was obvious. Those two areas are the economic engines of the state of California, so they wanted to connect those to the interior which lies in between. Number one, just for economic prosperity. But also, number two, to make it so that you could relieve the congestion in terms of the housing market in LA, San Diego and San Francisco and Silicon Valley. Those areas obviously because they're

Photograph: ThisisEngineering RAEng

economically prosperous attract a lot of people. It's a very congested housing market. So, if you could somehow make that commute easier for people, you could essentially spread people out, and that would be really helpful for everybody in the state. This was the idea.

They floated a bond in 2010, which was for $9 billion to begin construction. The total budget initially was estimated at $33 billion. The projection was that enough of the line would be functional by 2021 that it would be in the black, and it would essentially be able to generate enough income to complete the rest of the line on its own without taking any more taxpayer money. That was going to be through both fees for ridership and also public/private partnerships. That was the idea.

TS: It's 2022. I haven't heard about this rail?

AD: They approve track between, I think, it was Madera and Fresno. That's where they're going to start. It's pretty far to the south of San Francisco and pretty far to the north of LA. But that's where they're going to start building the track. It takes them five years to break ground. That's a problem. They approved this bond in 2010. They don't break ground until 2015. That's probably a sign that things aren't going well.

But then what happens is that somewhere around that time leading up into 2018, they figure out that there's a problem. In fact, there are two problems, and the two problems are mountain ranges, one, which is the Tehachapi Mountains, which are to the north of LA separating LA from Bakersfield. Then even worse is the Diablo Range. The Diablo Range sits to the south of Silicon Valley, separating that from everything to the south. Again, this is the whole reason why these areas aren't connected in the first place.

So somewhere along the way, somewhere between 2015 and 2018, they go, 'Oops, we didn't really think about the titanic engineering challenges that these two mountain ranges are going to present in terms of actually connecting point A to point B,' in other words, San Francisco basically to LA, 'because we got to figure out how to blast through these mountains.' The governing body of the project put out a report saying, 'Oops, we made a mistake, because actually the budget's going to be more like $81 billion. We're not even sure it's going to be that low because we don't actually know if we can blast through these

mountains and actually run track through them.'

This now goes, in 2018, to Gavin Newsom, the governor. Now, you might think that once your budget's gone from $30 billion-ish to $80 billion-ish, you might go, 'Oh, well, we've only laid this little bit of track. Why don't we stop now?' Except that's not what happens. Instead, Newsom says, 'No, we're going to keep going, and here's what we're going to do. We're going to build track next between Bakersfield and Merced.' Now, notice this is to the north of the Tehachapi Mountains. This isn't addressing the engineering issue. 'Then after we're done with that, we're going to build track between San Francisco and Silicon Valley,' which is, by the way, already connected by roads and to the north of the Diablo Range.

So instead of just shutting the whole darn thing down at that point, they escalate their commitment. They say, 'I don't know what's going on with those two challenges that we can't complete the line if we don't finish it, but we're now going to build two other pieces of track on flat land.' Essentially, if we think about it in terms of the original goal, they're building from nowhere to nowhere, at least not anywhere that anybody was trying to connect in any way.

The last report, which came out just last year, now estimates the cost at about $120 billion and still says, 'It's very uncertain that we're going to actually be able to conquer these engineering challenges.' Obviously, you can see there's some cost issues in there. There are endowment issues. There's issue about identity. This problem that we feel of waste, 'I don't want to waste the taxpayer's money,' except waste should not be a backward-looking problem. It should be a forward-looking one. But $9 billion is already spent. Are you supposed to put another billion into this thing, or, by the way, another dollar?

This now can start to get us to a solution. I know that's weird because it's such a disaster of a story. But it can get us to a solution, and it gives us a clue to one of the first ways to think about quitting well. It's a mental model that I absolutely love that comes from Astro Teller, who's the CEO, otherwise known as Captain of Moonshots over at X, which is the innovation hub at Google. The mental model is called Monkeys and Pedestals. This is one of my favourite things ever. Imagine, Ted, that you need some money, so you decide you're going to come up with a side hustle. The side hustle is going to be that you're going to train a monkey to juggle flaming torches while standing on a pedestal in the town square. Som can we agree, people would probably throw a lot of money in your hat?

TS: Sure.

AD: What Astro says is, what are you supposed to do first? What's the really hard thing about this? Because one thing is a possibly intractable challenge, and the other thing is building the pedestal. Think about building the pedestal for the monkey to stand on. We already know that we can do that because people have been building pedestals for many thousands of years. You could probably buy a pedestal from somewhere, or you could turn a milk crate upside down. The thing that might be a bottleneck to unlocking the whole system is actually, can you train this monkey to juggle the flaming torches?

So, if we take Monkeys and Pedestals, basically it's #monkeyfirst. When you're approaching a problem, you want to think: what are the bottlenecks? What's the really hard thing that needs to happen in order for me to be able to unlock this problem? That's the thing that you're supposed to go after first. You're not supposed to build the pedestal. Let's think about why that might be. Why is this such a helpful way to think about approaching problems? Well, first of all, can we agree it's the opposite way that most people approach problems? Because I don't know about you Ted, but have you ever heard someone say, 'Let's tackle the low-hanging fruit'?

TS: The low hanging fruit? Yeah.

AD: I don't have a problem with eventually building a few pedestals. You should eventually tackle the low-hanging fruit, but not before you figure it out whether you can get to the top of the tree. We do that because we like the sense of progress. This is one of the most important points of what Astro Teller says: that there's progress, and there's false progress or the illusion of progress. If you build a pedestal, it's the illusion of progress because you already knew you could do it. If I build track between Bakersfield and Merced, it's the illusion of progress because I already knew I could do it. That's not really the problem that I have in building this train or training my monkey.

The problem, the real progress would be in solving something that you don't know yet whether you can solve. Figure out, can I get that monkey to juggle those torches, or can I actually blast through the Diablo Range and get track to run through it and do that thing first? This is so important because every minute that you spend building a pedestal, every dollar that you spend building a pedestal before you've tackled that monkey, those are sunk-costs that you're accumulating. Like the taxpayers, they've now accumulated $9 billion in costs building pedestals, track that they already knew that they could build. The problem is that it snowballs on you. You accumulate the sunk-cost that makes it harder for you to stop, which then causes you to accumulate more costs, which then makes it harder for you to stop. So, if you start with low-hanging fruit, if you start building

pedestals first, you're now going to make it harder for you to quit when you actually butt up against a monkey that you can't solve.

From Teller's standpoint, he says, 'Look, we're going for moonshots here. If I can figure out, after spending $2 million that we can't do it, instead of figuring that out after we've spent $9 million, that's not a waste of $2 million. It's a saving of $7 million. This is the way that we need to understand that.' Now let's go back to the California bullet train. Well, the monkeys are the mountains. The pedestal is any track that you build other than this stuff that's at the mountains. Look at what they're doing. They're just pedestal building. I'm sure you can hear somebody in the room saying, 'Well, we shouldn't cancel it. Let's tackle the low-hanging fruit.'

TS: Has anyone gotten you in front of Gavin Newsome?

AD: Well, no, but maybe somebody will. You can think about this for anything. Let me just say that the fact that X is called X is literally Astro Teller living this concept of monkeys and pedestals. Because what happened was when they founded the innovation hub, they decided they would save the name for later because they just wanted to figure out whether this was going to work, whether it would make sense. Their charter is to take huge ideas from inception to commercial viability in five to 10 years. That's what their charter is. So, they wanted to work on that stuff first, and they decided they would figure out the name later. So, they just called it X for the time being. That's such a great example. So, I want to encapsulate it. I think it's do the hard thing first and beware of false progress.

TS: What are some of the other key remedies to help people quit better?

AD: Another one that actually goes, I think, really well with monkeys and pedestals is what I call kill criteria. Let me just set this up by saying I think Daniel Kahneman says this really well, that the worst time to make a decision is when you're in it. What does he mean by 'in it'? I like to describe it as you decided that you want to eat healthier. Now there's a cupcake sitting in front of you. That's what it means to be in it. It's really hard to actually do that. Can we figure out a way to make these decisions when we're not in it? Because that should improve behaviour.

So, kill criteria comes from this idea. Actually, I got the idea mainly from some work of Barry Staw's. One of the things that does not help is saying, 'Just treat the decision like it's fresh.' That's intuitive, right? Well, if the problem is that I made the initial allocation, then what I should do is think, well, what if I were one of those people who was new to the decision? I've actually heard people that I work with say this all the time: 'Oh, I tell my traders to say, "What would you do if you had to buy it today?"' So it's trying to do that mind trick of thinking about it as if you were new to the decision, as if you can somehow sweep the cognitive debris out of your brain of having made the initial choice.

He actually tested that and found that it made no difference. If you said, 'Don't worry about what's happened in the past. Think about it as a new decision. What would you do if you were fresh to it?' all that stuff, it does not help. So, stop doing that. I just want to say that. Stop saying, 'Oh, I just say, would I buy it today?' because you're fooling yourself into thinking that you're making a more rational choice. You are not.

But one of the things that he found that did actually make a difference is equivalent to a turnaround time. What he said was when people made the initial choice, 'I want you to list off what the benchmarks are that you would expect this division to hit that would show you that this allocation was successful.' So he's asking them to think about in the future when the participants see the performance going forwards, what are the signals that it's failing? What are the signals that it's succeeding? So, he has them do that, write it down. Now he asks them to go and make an allocation. When they do that, this gets you to a decision that looks fresher. Now, this should sound a lot like turnaround times. That's what you're doing. At the base of the mountain, you're saying, 'What's the point at which I ought to turn around?' and you're making a commitment to that.

Here's an example of kill criteria. This is something that I did with a group of salespeople at a company that I consult for that's called mParticle. They offer a CDP (customer data platform). I said to the sellers, you get a lead through an RFP or an RFI. It's six months later, and you've lost the deal. Looking back, you realise there were early signals that the deal was not to be won. What were they? They all generate this independently and asynchronously. That's really important. You can go read how to figure out why that's really important. But they come up with a lot of lists. Some of the more common ones were: in the first meeting, all they wanted to talk about was price. They didn't ask anything about our technology or why we're different or whatever. They were just asking for price. Now, obviously, that's a terrible signal. Probably it means they're just trying to beat somebody else down or check pricing. Another one they came up with was that they couldn't get a decision-maker in the room, so they weren't able to get an executive or someone who could actually make a decision to buy in the room.

So, we generated this list. Then we'd turn those

into kill criteria. So, the kill criteria are, if you take a first meeting with someone and all they want to talk to you about is price, don't spend any more time on them. Why don't you want to spend any more time on them? This is very important for people like salespeople who are naturally very gritty. The reason why is that you know that it's very low expected value now. Probably they're already pretty far down the road with a competitor, and they're just trying to beat them down on price, and you're a stalking horse. So why are you wasting your time for someone who's not actually going to buy from you? That gets into don't accumulate more sunk-costs, don't spend a whole bunch of time on them.

In the case of not being able to get an executive in the room, they didn't kill right away, but it triggered a new action which was offer up executive alignment at the next meeting. We'll bring an executive from our side. You bring an executive from your side. If they said yes to that, then you would continue. If they said no, you would kill.

So, we generated a very long list of these kill criteria. What this allows them to do is when they're not actually facing the decision down, they've now thought in the abstract about, what are the negative signals that I might see in the world? What are the snowstorms that might come my way while I'm on the top of this mountain that would tell me that I ought to quit? But we know that I'm probably going to escalate my commitment. We know I'm probably going to double down. We know I'm probably going to persevere and stick to it anyway. I don't want to do that because there's too much cost involved, both in the time that I'm spending on something that's low expected value, but also in not spending that time on something that's higher value. We turn that into a pre-commitment, which then allows you to manage them much better.

One of the problems from a management perspective is that we manage the outcome. Did you close the deal or not? That's how I decide whether you're a good seller. Now, if I've got a large enough N over a large enough course of time, that is reasonable for me to say in the last year, what business has Ted closed? But it's not reasonable on a single lead that you might be pursuing. Yet, this is what we do. When Ted loses the deal, I'm quizzing Ted about it because that's how I'm measuring whether Ted is doing well or not.

When we develop this set of kill criteria, not only are you more likely to follow it because you're looking for those signals and we've made some public declarations about how we're supposed to behave towards those, but as a manager, it allows me to manage to the kill criteria and to win. So this now gives Ted two ways to win. I can close the business, or I can follow the kill criteria. When my manager says, 'How's it going?' and I say, 'Oh, the first meeting, all they did was talk about price,' and I say, 'so I didn't pursue further,' the manager goes, 'That's awesome,' and I get a win for that as well. That's one of the most powerful ways to start to develop really good quitting habits.

TS: A lot of the monkey and pedestals and the kill criteria, you can imagine an individual decision-maker working through that. How can you leverage a team that's working together to make better decisions?

AD: Again, I said a lot of the problem is that we're trying to make these decisions when we're in it, and we know we're not very good at that. So, I kind of think about two ways to not be in it. One is to think in advance, so that's to not be in it on your own timeline. I'm on my own timeline and I'm thinking about it far in advance. Monkeys and pedestals would be doing that. Think about what's the hard part of the problem first. Maybe I should do an engineering study, a feasibility study on the mountains before I start building any track. That's thinking in advance on how do I approach the project to figure out if I can solve for the bottleneck first.

Kill criteria is the same thing. Basically saying to yourself in a way that feels counterintuitive, what are the signals that I might see in the future that would tell me that I ought to quit? That's counterintuitive because we think, well, we have a thesis as we enter into, say, an investment. Obviously, when the world's turning against our thesis, we're going to quit. So I don't need to do this advanced step, but you actually do. So that's one way to do it. But another way to do it is to be on your own timeline, so in that moment in time, even when you might be in it and talk to somebody who's not in it.

In other words, just get yourself a quitting coach. We all know this. We can see really clearly that someone should be quitting something. We can see better than most people when they should be out of a relationship. We can see better than most people when they should quit their job. We can see better than most people when someone should shut a project down, when someone should sell, and so on.

Basically, I don't carry with me all the stuff that you carry with you, all the cognitive debris that you carry with you when you've already made that original decision. So, I don't have the sunk-cost associated with it. I'm not endowed to the original decision. None of my identity is tied up with that decision. I don't carry any career risk that might be associated with that decision, so I'm not in it with you. So I can look from the outside in and see it much more clearly in the same way that we can look from the outside in at the California bullet train and go, 'This is nuts.' But the people who are in it making the decision are saying, 'We don't want to waste taxpayer money.

This really came through to me, I think, in a really clear way in a conversation with Danny Kahneman when he told me he has a quitting coach. His name is Richard

Thaler. He said basically, you have to find someone who loves you but doesn't care much about hurt feelings in the moment. What does he mean by that? Well, one of the things that might stop me from giving you a really good perspective, a fresh perspective, is that I don't want to hurt your feelings. I don't want to make you feel bad. It's hard to tell someone that they're failing, that they need to shut their thing down. But we need to be able to do that if we care about how things turn out for them in the long run.

This has probably happened to you before, Ted, I'm guessing. It's like you break up with someone or you quit a job or something and people say, 'Oh, I'm so glad you did that. You should have done that six months ago.' What do you always say? 'Well, why didn't you tell me six months ago?' Well, that's because if we leave things implicit, it's, 'I don't want to hurt your feelings because I love you.' That's sort of the implicit understanding. So even if you tell me, tell me the truth. I'm going to tell you what I think you want to hear, and nobody wants to hear, 'You should close that mental account in the losses.' Nobody really wants to hear that. So what you have to do is say to your quitting coach, 'I want you to tell me the truth because I want what's best for myself in the long run.' If you can do that, you can get people to really help you with these types of decisions.

I think one of the best examples if we combine all of this together comes from Ron Conway, who is the founder of SV Angel, one of the most successful angel investors ever. When you look at his career and you look at the companies he's funded, there's a whole long list of things that you might think he's super proud of. But what's interesting is the thing he's proudest of is actually coaching founders to quit, which really goes against what we think about at Silicon Valley, like VCs who want everybody just to grit it out. But that's not true. What they want is that people who are spending their time on something really worthwhile to stick to it even through the hard times. That's the wonderful thing about grit.

This is what Ron Conway is proudest of. He told me what he does with founders is he'll sit down when he can see that maybe the company is floundering, maybe things aren't going so well, and he'll have a conversation with them about what he sees. He said pretty much every single time the founder's like, 'No, I can turn it around.' He actually does something interesting at this point, which is he doesn't disagree with them. He actually agrees with them and he says, 'Oh, I totally believe you can turn it around. Let's see. What does turnaround look like? If we think about what's going to happen in the next two months, let's imagine that we're two months from now, tell me in detail what are the things that are different that tell us both that you have turned it around.' That should sound a lot like kill criteria. He's asking for details. So, they work that out together, what does turning it around look like? Then he says, 'Great, let's talk again in two months, and let's agree right now that if you haven't hit those benchmarks, then you ought to return the capital to your investors.'

He comes back in two months. You know what? If they've hit the benchmarks, great, they keep going. But if they haven't, now what he's allowed those founders to do is think about that decision long before they're actually in it, long before they're having to actually shut it down. They've had two months of very clear criteria that they're trying to meet. If they don't meet it, it becomes an easier decision that allows them to return the capital to the investors, which is, as he points out, better for them.

His whole thing that he says to everybody is life's too short. If you're a founder, you're probably brilliant and, by the way, incredibly gritty. You probably have that very good quality of being very gritty, super smart, driven, wanting to create a world that's 10 times better. So let's agree that when we both figure out that this isn't the thing that you should be spending your time on, that life's too short for you to do something this hard if it's not worthwhile, and you need to move on to something that is going to be worthwhile. I think it's such an incredibly important way to think about things.

Really what he's doing is just acting as that quitting coach. He's acting as the outside voice to help those founders see what he can see in a way that they can process so that they can actually get to that sooner. One of the things he said to me, which I think is really important, is he's like, 'Look, when I talk to them, I usually think they should shut it down that day. Did they keep it going for a few months longer? Sure. But they might have kept it going for two years longer.' That brings us right back to Astro Teller, get there in two million instead of nine.

TS: This is so just fascinating. I really encourage everyone to go read the book. It's a fabulous book, and people are going to get a lot out of it. Thanks so much.

AD: Well, thank you very much.

Capital Allocators

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What Do We Owe the Future?

Why we ought to be moral

WILLIAM MACASKILL
ECONTALK

Interview by Russ Roberts
Illustration by Vaughan Mossop

Russ Roberts: My guest is philosopher Will MacAskill of Oxford University. He first appeared on EconTalk in 2015, talking about effective altruism and his book *Doing Good Better*. His latest book and our topic for today is, *What We Owe the Future*.

Your book opens with a rather fascinating thought experiment that you took from Georgia Ray's 'The funnel of human experience.' The opening of your book goes like this:

'Imagine living, in order of birth, through the life of every human being who has ever lived. Your first life begins about three hundred thousand years ago in Africa. After living that life and dying, you travel back in time and are reincarnated as the second-ever person, born slightly later than the first. Once that second person dies, you are reincarnated as the third person, then the fourth, and so on. One hundred billion lives later, you become the youngest person alive today. Your "life" consists of all these lifetimes, lived consecutively...

Your life lasts for almost four trillion years in total. For a tenth of that time, you're a hunter gatherer, and for 60 per cent you're an agriculturalist. You spend a full 20 per cent of your life raising children, a further 20 per cent farming, and almost 2 per cent taking part in religious rituals. For over 1 per cent of your life you are afflicted with malaria or smallpox. You spend 1.5 billion years having sex and 250 million giving birth. You drink forty-four trillion cups of coffee...

Fifteen per cent of your experience is of people alive today. That's your life so far, from the birth of Homo Sapiens until the present. But now imagine that you live all future lives, too. Your life, we hope, would be just beginning. Even if humanity lasts only as long as the typical mammalian species (one million years), and even if the world population falls to a tenth of its current size, 99.5 percent of your life would still be ahead of you...

If you knew you were going to live all these future lives, what would you hope we do in the present? How much carbon monoxide would you want us to emit into the atmosphere? How much would you want us to invest in research and education? How careful would you want us to be with new technologies that could destroy or permanently derail your future? How much attention would you want us to give to the impact of today's actions on the long term?

I present this thought experiment because morality, in central part, is about putting ourselves in others' shoes and treating their interests as we do our own. When we do this at the full scale of human history, the future – where almost everyone lives and where almost all potential for joy and misery lies – comes to the fore. This book is about long-termism: the idea that positively influencing the long-term future is a key moral priority of our time.'

Do you want to add anything?

William MacAskill: I think that can get us into the core issues, which, a little later on in the book, I state as the idea that future people count morally – there could be a lot of them – and we can really make a difference to their lives.

RR: Helping people today does help people tomorrow in many ways. So, we already take account of the people who will come after us.

WM: Yeah, that's absolutely true. So, when we innovate or build better institutions or have a better, more moral culture, all of those things do benefit future people, too. It would be surprising, though, if that was the best way of helping people. In particular, because there are things that negatively impact the future as well.

Most famously now are CO2 emissions. But I also think certain other forms of technology fall into that category. Advances in biotechnology, I think, pose great risks for the present and for the future. And so, I think we should be attending to what we do today. What are the things that are really helpful, not just for the present but also for the future? What are the things that are actually most worrying when we take a longer-term perspective?

RR: I think most people would agree that people in the future matter. The hard question is: How much? You're arguing that we don't take account enough of the future because there'll be so many people – unless there's a catastrophe – there'll be so many people and they will live for, presumably, a very long time. So, I think you're arguing that, morally, they count for more than we do because they're more numerous. So, a sacrifice on our part that leads to a benefit in the future should be morally demanded of us because so many more people will benefit than are harmed today. You're very much utilitarian in this book. Am I right?

WM: Yeah. I'll clarify my view a little bit. That's close to correct, but not fully correct. I think people in the future have the same moral worth or moral status as people in the present. I do think there are additional reasons that are not about people being present but are about relationships we have with people in the present. So, I think I have a different set of moral duties and moral reasons with respect to my mom, than with respect to someone who I've never met on the other side of the world.

That being said, I still have a lot of moral reasons with respect to that person on the other side of the world. I can't wilfully harm them. If it's easy for me to make their lives much better, I think it's morally important for me to do that. I also think you're completely right, that I think the numbers really matter. So, if I can save one life or save ten lives, it's more morally important to save the ten. And that's, again, because all people count equally, so the interests of ten are just more important than the interests of one.

You then mentioned sacrifice, and here there's a tricky question of how much does morality require of one? The standard utilitarian answer is that morality is extraordinarily demanding. If I can sacrifice myself in order to save the life of someone who I think will do a little bit more good than me, or in fact would even be a little bit happier than me then I'm morally required to do that. That's the most extreme view that one can have in terms of moral demandingness. And, it's not a view that I want to defend in this book. At the moment we're so far away from that margin – where, in terms of effort that we spend really trying to think about the long-term impacts of our actions and explicitly trying to positively guide the long-term future – how much of world GDP is that? I don't know – 0.1 per cent, 0.01 per cent or something? It's very low. And so, on the current margins, if we get to 1 per cent I would be over the moon.

RR: So, you're saying if we had to sacrifice 1 per cent to achieve something good for the future, that's a relatively easy case to make in your view – because of the magnitudes involved?

WM: Exactly. And, I think you don't need to have anything nearly as extreme as utilitarianism to justify that view. I think that should be true on a very wide variety of moral views.

RR: Let me take the opposing view, which is the following: those people in the future, they're going to be so much richer than us. They should be sacrificing for us. I mean, we are endowing them with a platform, a base level of wellbeing and intellectual knowledge that's going to grow over time. So, 100,000 years from now, those folks are going to live such extraordinary financial lives. We can debate what kind of levels of real happiness they might have, but they're going to be wildly more materially better off than us at current trends. Why should we sacrifice anything for them?

WM: Excellent question, and I think there are two answers.

Firstly, I don't think we should be certain that people in the future will be much better off than us. To take the year 2300, I would say it's 80 per cent likely that they are better off than us, and maybe a lot better off given compound technological progress. However, there is also a 20 per cent chance that they're worse off than us. I don't think that's crazy at all. I think there could be widespread catastrophe from the result of new technology, all-out nuclear war, worst-case pandemics and engineered bio-weapons, or even just stagnation and then decay of society, kind of like a

“I’m looking at either catastrophic events that would make the world much worse or much poorer, or changes to values where perhaps they have much greater resources than we do but they’re using them for bad ends.”

global fall of the Roman Empire.

The second thing is that this argument, that future people will be richer than those today, that only applies to what economists call marginal harms. So, if I’m making myself a little poorer in order to make someone in the future a little bit better off – and again, I completely agree that if that’s what’s going on, then yeah, that financial benefit in the future matters much less. But, now we take something different: is that person in the future enslaved? It really doesn’t matter how rich they were beforehand in this thought experiment. If they’re now enslaved, that’s not like a marginal harm, a marginal financial harm. It’s something quite different. Or, if the person dies altogether. Or, something that raises more philosophical issues is if they never come into existence in the first place.

But, in general, I am not looking at these, like, marginal differences in how well-off we are today versus in the future. Instead, I’m looking at either catastrophic events that would make the world much worse or much poorer, or changes to values where perhaps they have much greater resources than we do but they’re using them for bad ends.

RR: I understand what you’re saying, especially having read your book. You’re focused on preserving the opportunity for these billions of people in the future to flourish. Meaning not just that we’ll avoid a nuclear disaster or a global pandemic with dramatically worse consequences than, say, COVID-19. You’re also worried about the fact that, to take an example that’s not exactly in your book, but it could have been, that an authoritarian leader would take charge of the world, inflict enormous pain on the billions of people that will come in the future. That those are the kind of things that we ought to be focused on.

WM: Exactly.

RR: Now, one argument that comes to mind is that we’re doing pretty well without long-termism. That is, the focus that you want to bring to the moral calculus. You could argue we’re doing pretty well, right? Here we are 250 years or so into the Industrial Revolution; lifespans continue to rise. We’ve had some blips lately, but lifespans are rising, standard of living dramatically higher for enormous numbers of people. One could argue that the kind of focus that you want to have us have, of more concentration on steering the future wisely, is actually either hard to do or ill-advised. What’s the case for why we should care about this? Isn’t it kind of going okay?

WM: I’m sympathetic to thinking at least as a baseline, what are the things that we’ve been doing in the past that have worked really well, including in unanticipated ways. Maybe we don’t have a great story with detail about how that will transfer into the future, but let’s just keep doing this kind of more of a good thing. I’m certainly sympathetic to that as a baseline; and I do think that supports making institutions better and more trusting, and open-minded and liberal culture, and of course, innovation as well.

However, this argument, ‘Hey, we’ve been doing well, things have been getting better,’ does seem a little brittle to me. So, here’s a question. What was the probability that the United States and USSR would have an all-out nuclear exchange? And, if I had to guess, it’d be something like one in three. Could have been higher. And now, let’s go to that world where there was one. Would we be having a conversation like, ‘We’re doing pretty well. Things have been getting better’? I think we probably wouldn’t be having that conversation.

I would like us to be in a world where that risk of all-out nuclear war was not one in three: instead it was more like 1 per cent, or 0.1 per cent, or basically as low as we could get it. And, that’s precisely because I think if you just look at what is human history, it’s a dark place. People in the late past had

miserable lives. The majority of people were in some form of forced labour is my best guess. The world was extremely patriarchal. There was an enormous amount of suffering and ill health. I agree there are a certain set of cultural institutions combined with innovation that's going pretty well. But there are just as meaningful risks of that not going well.

We've seen the first warning signs in the twentieth century on both the values side and the technological side. Technological side, we saw nuclear weapons. On the value side, we saw totalitarian regimes, even arising out of democracies. Whilst it was very unlikely that the Nazis could have won the Second World War, it's not crazy to imagine that it was Nazi fascist values that took over, that they were successful in establishing a 1,000-year regime. And, again, if it were you and I looking at that world, I don't think we would be saying, 'Oh, well, things are going well.' So, I just want to reduce those risks down.

RR: Well, they weren't going well really in 1945, for sure. We don't have to have the Nazis win or nuclear war. We had – between Fascism and Nazism – I don't know, 100 million people die before their time.

Now that raises a different challenge to your claims, which is: you want to push the importance of morality, putting it front and centre. The problem is which morality? Certainly, the fascists and communists thought they were doing something that was good. It's hard to know what's right.

WM: I agree with you that moral ideology can be a very scary thing. The Nazis or Stalinists have some very particular visions of the future and want to implement it and are willing to justify atrocities in the name of it. That's something that should really scare us.

Here's a different perspective, though, one that says 'we don't know what's morally right.' We're probably still very far away from the kind of morally best view. A more enlightened future people would think of us as maybe a little better than the Romans, but not enormously better. And so, what we want to do is build a society that can have a great diversity of moral views and a kind of culture and institutional setup such that those views can debate and reason and experiment. And, we can learn over time which the right moral view is. And so, the best ideas win out on their merits rather than via conquest, for example.

RR: Well, I really like that. Although, as we know, things don't always win out on their merits. There is a decentralised aspect of the book, for a few pages anyway, where you worry about the lack of diversity. A very thoughtful point you make that the worldwide response to COVID-19 was quite uniform. There were variations at how much people were locked down, how much authoritarianism was imposed, but there wasn't a lot of experimentation. Most of the countries of the world did something very similar; and we lost an opportunity to learn. I think that observation is very important.

"... when we're thinking about what sort of institutions do we want, we want to thread this needle where you can have diversity of moral views, experiments, best ideas winning out, while at the same time kind of mitigating the worst risks."

WM: Absolutely. So, there's a theme in the book that I don't really make explicit but here it is: some of the major risks of catastrophe are failures of global coordination. So, the risk of a nuclear war, or development of technology that could destroy us, or carbon emissions as well – where the push there is towards greater centralisation of the world. There are risks on that end, too, where greater centralisation could mean we stall moral progress. In the worst case, the simplest case, you've got a world government; it's a dictatorship. There's another ideology that's locked in forever. But, even if we just have this gradual homogenisation and people stop really trying to make moral progress, because people think, 'Oh, we've gotten to the pinnacle,' in the way that maybe the Romans actually thought they were the pinnacle of civilisation, I think that could potentially be a catastrophe, too.

So when we're thinking about what sort of institutions do we want, we want to thread this needle where you can have diversity of moral views, experiments, best ideas winning out, while at the same time kind of mitigating the worst risks.

Photograph: Federico Giampieri

RR: Let me read another short excerpt from the book. You say:

'Future people count, but we rarely count them. They cannot vote or lobby or run for public office, so politicians have scant incentive to think about them. They can't bargain or trade with us, so they have little representation in the market. And they can't make their views heard directly: they can't Tweet, or write articles in newspapers, or march in the streets. They are utterly disenfranchised.'

Now, I think that's not true in the effective sense because of the way people come into the world. And I felt you neglected this aspect of the human experience. Which is to say: those future people you're talking about are our children, our grandchildren, or they're somebody's children, grandchildren, great-great grandchildren; and they're not disenfranchised. We care about them quite a bit. Now, it's true I care more about my child than my grandchild if my grandchild is not born, but the potential for my grandchild to be born, which I have in mind, is not ignored. Now you could argue, yes but twenty generations is so distant. But, the fundamental principle that the future is born out of the present through the family, seems to me to take care of some of the things you're worried about.

WM: I agree that it takes care of some of the things. If we imagine a world where people didn't care about their children or their grandchildren at all, I agree we would be in an even worse place. However, you are right that this drops off pretty quickly. I mentioned earlier the lifetime of typical mammal species is about a million years. That would mean we have 700,000 years to go. I think we could last much longer than a million years. Earth will be habitable for hundreds of millions, and I don't think the sort of natural catastrophes that typically kill off species necessarily needs to kill off humans.

People care about their kids and grandkids and that's an important force for some amount of concern for future generations. However, I don't think it nearly matches the scale of concern that would be morally appropriate given that the vast majority of people are not even people's great-great grandkids, but live past that point. Secondly, my point about them being disenfranchised is that if we take action for future generations, it's via the views and values of people who participate in markets, who can vote. An analogy could be with non-human animals. Let's just look empirically at what happens to animals. Well, pets get treated pretty well, but the 80 billion animals that are kept for food, almost all in horrific conditions and

then slaughtered, they have really terrible lives. I think there's an analogy between that and future people where, for sure, we have some amount of concern about animals; not nearly as much as we should have. And that means that we inflict enormous and unnecessarily suffering on them. I think the same thing kind of happens to the future where there is a certain amount of concern, but not nearly as much as I think there ought to be.

RR: Animals' suffering is a really interesting issue. You're a vegetarian – you talk about that in the book. I'm not, but I think it's a serious moral question. I think a person who pretends to be moral, as I do, has to confront this. I like to think of myself as a moral person, so what am I doing eating meat? I could say, 'Well, I don't eat it that often.' But that's like saying, at least I only torture or torment animals a little bit.' I think, like slavery, which you talk about quite eloquently in the book – most people who held slaves found ways to convince themselves that it wasn't such a bad thing. And, I think many of us who eat meat have found ways to convince ourselves. And, we might be very wrong about that, just as those people, I think, who felt morally comfortable with slavery were wrong, certainly with the benefit of hindsight.

So, I think that you make a good point: that, it could be that my concern for future generations is something that is like my concern for animals – that I have a story to tell, it will probably be okay, they're going to be richer than me. Maybe I'm just fooling myself and finding ways to do what I want to do rather than what is correct. That's very possible.

WM: Perhaps you'll have concluded one way or the other by the end of this conversation.

RR: Well, I have already read your book and you haven't won me over yet; but it could be this conversation that puts me over the edge.

I'm going to ask you a tougher question. Let's say I don't have any kids. I actually have four and just had my first grandchild. So, I'm more focused on the future I think, than I was a month ago.

WM: Okay. Congratulations.

RR: Thanks. But, let's pretend I don't have any kids or I'm not a particularly emotionally connected parent or grandparent and certainly ten generations from now just doesn't have any salience for me. And let's suppose we believe that, say, climate change is going to have a catastrophic impact on humanity. I'm a little bit sceptical of that – of the catastrophic part – I'm open to the possibility that it could be bad, but the catastrophic part I think is a low probability. You could say, 'Well, yes but there is still such a bad

> "... this is one of the deepest questions in philosophy, which is: why ought I to be moral? And, I think, ultimately, there's no non-circular answer."

downside, you should be very focused on it.' Well let's say I'm not a particularly nice person. I eat a tonme of meat because I don't care about animals, and I fly everywhere because I'm not worried about carbon dioxide emissions. And, you're telling me I should worry about somebody 700,000 years from now? Why? Why should I care?

Let's say they come into existence and their life's worse than mine, because there are a lot of plagues, bad moral views, institutions have degraded and there has been a loss of civilisation. So, what? Why should I care about their happiness? I have my own. Why isn't my happiness paramount? I think that's a repugnant view, but I'd like to hear why you think it's repugnant.

WM: I mean there's one view you could have where you just reject any sort of moral reasons at all. You're just a pure egoist. Put that to the side and we can come back to it if you want.

But there's a second view which is that: yeah, I think of moral reasons to people who are in the same generation as me, that perhaps I interact with, but not with people in the future. And I just think that's a very morally unintuitive view. So, imagine – I give this story in the book: I'm hiking along a trail. I brought some glass, the glass shatters. Should I clean up that glass? I think the answer is yes. And, why? Well, someone might come along and cut themselves on it. Supposing we know that that will happen, does it really matter whether that person cuts themself tomorrow or in a year's time or a decade? Or even if it was 100 years or 1,000 years? I think intuitively: no. As long as you're certain that that's going to happen, then harm is harm, whenever it occurs. Morality in

part is about taking seriously the interests of anyone who you're going to affect, especially when it comes to potentially harming them. Does mere location and time matter? That seems like a pretty weird thing.

RR: Well, I agree with that 100 per cent, but why should I care about today? So, I break the glass and it's a nuisance to pick it up. I'm in a hurry. Why should I care about those other people? Why do I have an obligation to them? One answer would be: because I'm going to feel bad. I'm going to feel guilty. But I'm taking a case, a repugnant case, where I don't feel bad. In fact, I think I'm a sucker if I stop and pick it up. I'm going to just go on and do my thing.

WM: So, this is one of the deepest questions in philosophy, which is: why ought I to be moral? And, I think, ultimately, there's no non-circular answer.

Ultimately, if you ask, 'Why should I care?' you'll always have to point to the reasons. For example, why should I go to the movies? You could say, because I'd be happy. I think that's a good reason. If it's, why should I not cut someone else? You would say, because they will suffer. And, I think that's the kind of bedrock reason. If I ask, well, why should I care about suffering? There's no further reason that one can give.

RR: Well, there is if you believe in God. I mean through most of human history, at least civilised human history, since the advent of monotheism, there was a feeling that you had an obligation to the Creator of some kind.

WM: I just wanted to briefly say, I think God doesn't save us from this problem. Because you could ask the same thing. Why should I pick up the glass? And, you say, 'Well, ultimately, because God wants you to.' And, I say, 'Well, why should I care about what God wants me to do?' Or 'Why should I care about what God says is right or wrong?' Or if it's like, 'Oh, I'll go to hell.' Well, that's back to the self-interest question, why should I care about my own suffering? So, again, at some point you are just throwing a line or the theist is just giving one additional level of explanation. But, the why question can be applied to that too.

RR: That's a great counter–argument.

WM: At some point you hit bedrock. This is true for not just moral beliefs, but other sorts of beliefs as well. Let's say you are sceptical of climate change altogether. And, I'm like, 'Oh yeah, of course, see these papers.' And, you're like, 'Why should I believe the papers?' And, I'm like, 'Okay, because of science and these experiments.' 'Why should I believe that? Maybe it goes all the way till I'm doing experiments in front of you. At some point I'm giving you reasons and if you're not accepting them as reasons, there's nothing more I can do. If I've given you a reason that's a genuine reason for you to change your beliefs, and if you're not willing to accept it, there's no way I can get you out of that what-we-might-call epistemic black hole.

RR: I do think, though, that religion as a social–cultural phenomenon has the potential to restrain some types of behaviour while encouraging others.

WM: Maybe this will surprise you but I completely agree. I think of religion as like a technology or social innovation where, in particular, the thing that appeared was many different religious traditions, what's called Big Gods. These are Gods who are watching you while you're alone, while no one else is around and they care morally what you do. So, no one else is around. You could steal that bit of food. You could steal that money. No one would catch you. God could, though. God is watching you. Now, that's great as an innovation. If everyone believes that, then you get a lot less cheating.

How long have we had in a kind of post-religious era? I mean, we're not even there yet, really. The world is 16 per cent atheists or agnostic. Honestly, I just do worry about it. Perhaps you just do get free-riding coming back.

RR: It's a fascinating question. I'm going to ask a different version of it now. You have a thought experiment where all but, say, 80 million people are destroyed in a nuclear war or a plague. So, we have a core group of survivors. You raise a fascinating question about how much technology would we be able to recover. Talk about that, then I'll give you my variation on it and see what you think.

WM: What are the things that could impact, not just the present but the long term? Well, there's this enormously important question of how fragile is civilisation? If there was some catastrophe that really knocked us off course, killed maybe let's say 99 per cent of the world's population, would we recover? Would that prevent civilisation from ever returning in the long run? And, I think probably no. I think humanity is remarkably resilient.

There are a few reasons why I think this. One is if you look at enormous but still smaller-scale catastrophes, like the Black Death in Europe, or even the bombings of Hiroshima and Nagasaki. In these catastrophes, you see people having remarkable resilience in the face of that catastrophe. There are enormous amounts of suffering, but people respond, they build things, they restore society.

A second reason for thinking that we would bounce back is how much knowledge would be

preserved. There are tens of thousands of libraries in locations that wouldn't be threatened by nuclear war; which are sufficiently dry. That paper would survive for a very long time. There's also evidence of the tools that we've made. So, even if we go back all the way to pre-industrial technology, it's much easier to invent something if you've got a prototype. People will know, 'Oh, there used to be this more advanced technology, and now I've got this thing: it looks like a tractor. What's going on there?' At least you've got the idea for it.

The final thing is, are there any particular resources that could be bottlenecks, that simply prevent civilisation from coming back to this state? I haven't found one yet.

RR: One thing I would add to that as an economist is something I've thought about a great deal, which is: how many people do you need to have a successful division of labour if they trade among themselves?

And, the example I use is if you put a hundred people on an island that has really rich resources, all the minerals you might possibly want, really fertile soil. You get to pick who the 100 people are. You can pick the smartest, most talented; you can pick diverse people in terms of their skills and insights. A hundred people are going to be really poor. I don't care how smart they are. I don't care how rich the island is in titanium. You just don't have enough opportunity to exploit the Smithian gains from the division of labour.

One of the miracles of modern times that we don't appreciate is that trade allows eight billion people to specialise and do lots of different things they couldn't do if we were fewer.

RR: Your thought-experiment prompted me to think of my own. Your focus in the book is on technological knowledge, engineering knowledge, and the ability to innovate. I was thinking: what if the 80 million who survived had no religion and no knowledge of religion? They didn't have that thing you talked about of someone is watching.

Would it matter if we lost, say, the Bible, the Quran? Then I thought, how about *The Iliad* and *The Odyssey*? How about Plato and Aristotle? What if we'd lost literature, we'd lost philosophy, but we'd kept the technological knowledge that you're talking about. We have all the toys and all the knowledge to make the toys and to continue to make better toys – which is what human beings do.

WM: I think this is enormously important and maybe even the most important in the longer-term aspect of civilisational collapse. But if the world came back, how would it be in terms of its values, in terms of its institutions compared to the world today? And, over time, I've come to the view that, again, in particular, this kind of egalitarian, liberal, democratic worldview and set of cultures and institutions that is prevalent today, we're at least somewhat lucky in that. I think there are certain forces that mean that this makes more sense given the current level of technological development.

But, if you tell me that there's a catastrophe, the world comes back, we get to this level of technological development, but slave-owning is very widespread, or the large majority of countries in the world are authoritarian rather than democratic, I'm not the least surprised. I think that could make the world considerably worse, basically indefinitely into the future.

RR: You talk about contingency, what would've happened eventually. It's a fascinating question you raise. You asked a question which I think is quite profound. Slavery ended in England in 1807?

WM: Slave trading was outlawed in most of the British Empire in 1807. Owning a slave was outlawed in 1833.

RR: That was an amazing thing, which we sort of take for granted because, of course, slavery is horrible. And, then the Civil War comes along in the United States and the North happens to win. It didn't have to turn out that way. It could have lost, or they could have sued for peace and kept the South as a slave-owning alternative. Some people have argued the economics would've ended slavery eventually, but you make the case, I think quite provocatively, that that's not necessarily true and slavery could have persisted. And, therefore we should be very thoughtful about those kinds of social changes and the evolution of morality.

Talk about Benjamin Lay – I'd never heard of him – talk about Benjamin Lay and this whole question of moral values. This whole idea that things are not necessarily destined, and there are some individuals who push the path in a certain direction that is very thought-provoking.

WM: With the case of moral change, I think at least in many cases, things could go either way. There have been many, many moral change-makers in the world. I just kind of highlight this one particularly notable example because the story is so wonderful. So,Benjamin Lay is a Quaker. He's a dwarf. He refers to himself as 'Little Benjamin who beat Goliath,' like David who beat Goliath. And, he is among the earliest people – that we have records of – to really push for the end of slavery in a way that looks to us now kind of like a social campaign.

He was born towards the end of seventeenth century, and most of his actions were in the early eighteenth century. He just harangued the

Philadelphia Quakers in particular, at every opportunity about slave-owning, where he would engage in this kind of amazing guerrilla theatre. He would heckle people who stood up to speak. They would be giving a moral sermon and then he'd be like, 'Oh, there's another Negro master.' And, he would get kicked out of the church; and he would just lie face down in the mud. So, that after, when everyone had to leave, they had to step over his body. Or, he would just stand in the snow in bare feet. And, when people were like, 'What are you doing?' he would point out the slaves had to be in the cold, just as he did, all winter long. In his most famous stunt, he brought a Bible that was filled with fake blood to the 1738 meeting of the Quakers, and said it was as great a sin to keep enslaved people as to stab the Bible. And so, he stabs the Bible, and fake blood spatters all over the audience.

His direct causal influence is not exactly clear, although he was certainly influential on people like John Woolman and Anthony Benezet, who were then enormously influential. That's better-documented. And his era coincided with the Quakers' dramatically reducing the extent of their slave owning.

I use him as a vivid story, a kind of moral agitator. Someone who really had this moral view, that in retrospect we think was completely correct, but it was heterodox at the time. He stood up for what he believed in and was willing to make major sacrifices. He boycotted all slave-produced goods. He was vegetarian. And, ultimately he was part of this larger campaign that was enormously successful – maybe one of the most successful moral campaigns ever – which was that Quaker thought became packaged as part of Enlightenment thought that convinced the British elites and the British public, the British Empire chose to end slavery and tried to basically bribe or threaten other colonial powers to end slavery, too. And, over the course of, ultimately, 300 years, slavery went from utterly widespread – where the majority of people in 1700 were in some form of forced labour – to now it being kind of unthinkable where even on a broad understanding of forced labour, it's only 0.5 per cent of the world's population. That's just a remarkable thing. Prior to learning about this, I would've thought, 'Yeah, this is inevitable. It's either just like the inevitable march of moral progress, or it's just the result of economic changes.' And, I no longer think that's the case. I think it was largely a matter of cultural changes, such that if the world – if you could just leave all history and you told me that we had today's level of technological development, but widespread, forced labour, widespread slavery, I wouldn't be totally shocked.

RR: It's a fascinating thought experiment. I'm going to give you the challenge of this kind of thinking. I'm going to read what you say about Benjamin Lay:

"
... over the course of, ultimately, 300 years, slavery went from utterly widespread – where the majority of people in 1700 were in some form of forced labour – to now it being kind of unthinkable ...
"

'Lay was the paradigm of a moral entrepreneur: someone who thought deeply about morality, took it very seriously, was utterly willing to act in accordance with his convictions, and was regarded as an eccentric, a weirdo for that reason. We should aspire to be weirdos like him.'

And I thought, it's kind of also true of Hitler. A moral entrepreneur, who thought deeply about morality, took it very seriously, utterly willing to act in accordance with his convictions and was regarded as an eccentric, a weirdo – until it suddenly became mainstream that, if you were German, to believe that Jews were the source of the world's problems and therefore it was okay to murder them.

My challenge, as a person who has embraced the motto 'It's complicated', is that it's hard for me to be as you say – 'utterly willing to act in accordance with his convictions.' For me, it's hard, because I'm aware that I could be wrong, and I try to be open to the possibility that I could be wrong. If you feel that way, you're not going to be Benjamin Lay – which is a shame – but you're also not going to be Hitler, which is a good thing. It raises the question of: how do you know that your moral conviction and your eccentricity is headed in the right direction?

WM: Yeah. I mean, huge questions, and this stuff is extremely tough. This balance of: okay, we want diversity of moral views. We want moral views to have air-time. We should be aware that in the past, moral views that would've been potentially even repugnant – being against slave-owning. I mean,

certainly laughable, but I think in some circumstances repugnant, too – giving rights to women, we now think of as major moral advances.

One thing I should certainly say is an enormous difference between Hitler and Benjamin Lay is a difference of means. So, Benjamin Lay was agitating. He was making arguments, he was engaging in peaceful public protest. It was via the power of reason and empathy that he managed to convince the Quakers. Then they managed to convince both the British elite and the public.

RR: That's just because he didn't have much of a chance. The early Hitler did the same thing, too. Wrote a book, he had protests, he started a social movement. Once he got power, then he could really implement his vision. And Lay never got that power, you could argue. So, he was insulated from that.

WM: Yeah. I mean, honestly, I'd just be really surprised if Lay got power he would've implemented a dictatorship.

RR: What about John Brown? John Brown, he was an angel with a scythe. He was happy to cut people down because he thought slavery was evil; and he might have been right. It's complicated.

WM: Yeah. But, the thing I should say is, we want to set up a society in the right way, where you cannot use conquest, violence, to achieve your ends because that is not a method of getting to moral views. Instead it should be reason and empathy. But, here's the challenge – maybe that's not enough, because maybe Hitler was just this very powerful orator and was then able to convince people. The dividing line between argumentation and brainwashing is perhaps a hard one to draw.

Perhaps I am just with you: it's complicated. We obviously want to distinguish between brainwashing and rational persuasion. I would think, and/or deception and power grabbing. I would put Hitler as much more like the latter than the former, but how do you actually implement that in a society such that you get the former but not the latter? It's tough. It might be just an enormous, enormous challenge.

But I do think we can do better. It's disappointing to me that we expect politicians to lie. We're trying to have a world where we get to better views, and having the most influential people in society either outright lie or wilfully neglect the truth, or say things that are technically true but designed to mislead – I just think that shouldn't be allowed. I think that should be an absolute scandal if it happens. So, I think we can at least move in a direction where powers of non-rational persuasion are muted, and powers of argument and reason are winning out.

RR: You argue that one of the things you can do to make the future better is to have children. That flies in the face of many people's intuition. I think it doesn't fly in the face of mine, but I think many people would find that surprising. Make the case.

WM: The easiest is just to start off with the counter-case. At the moment in countries like the United States, people have fewer kids than they want to have. I think they want to have, like, 2.6 on average, and they have 1.8.

RR: They have fewer kids than they *say* they want. It's not the same thing.

WM: As a good reveal-preference economist, they have fewer children; and thank you for correcting my grammar. They have fewer children than they say they would like to have. That's for many reasons. But, one idea that's getting more currency is that it's immoral to have children because of the impacts on climate change. It is absolutely true that children – having a child – will cause more CO2 to be emitted into the atmosphere because of that existence of that additional person. However, I want to say two things.

Firstly, you can nullify that harm by offsetting. In fact, you can nullify it 100 times over. So, the cost of a child per year in the United Kingdom, it's like £10,000 – that's probably $13,000, $15,000, let's say in the United States. By donating to extremely effective climate non-profits, you can avert an expectation of a tonne of CO2 for about a dollar.

Let's say you increase the cost of raising a child by about 10 per cent. You spend more than $15,000, you spend $16,000. A $1,000 of that goes to highly effective climate non-profits. Then you have offset the carbon impact of that child a thousand times over. So, it's really playing safe in that regard. And, you've not enormously increased the cost of having a child. That's the first thing.

The second thing is deeper, and it is that if you're just looking at the carbon impact, you're only looking at one side of the ledger. Yes, people do things that are harmful for the world like too many carbon emissions. They also do enormous positive things as well. They contribute to society. They help build infrastructure. They pay taxes. They innovate. They can be moral change-makers like Benjamin Lay, who can improve the trajectory of civilisation.

RR: They could be a good friend.

WM: They could be a good friend. Exactly. They contribute in many ways. And once you look at both sides of the ledger, I think the positives win out against the negatives. A final thing is that if the people will have sufficiently good lives, I think it's a benefit for

Photograph: Kelly Sikkema

them, too. I'm very happy to have been born. I feel very lucky.

One way of thinking, 'Well, okay, how do the positives and the negatives weigh up?' is just to think, 'Well, suppose there'd been half as many people ever throughout history, where would we be?' If I was born as the one person after 50 billion, rather than one person after 110 billion? Well, I would be a farmer. I would be working twelve hours a day. I would probably be in some form of forced labour. I would not have freedom. I would not have much freedom over who I marry. I would not be able to travel. It would be a pretty bad life. The fact that we have a world today where we have a high material standard of living and that we have made some moral progress, that's in significant part a numbers game: the fact that we've had so many people who have contributed in a net positive way to society.

So, I'm certainly not saying that everyone should go having as many kids as possible, or certainly not that the state should get involved. All I am saying is, 'Look, it's not a bad thing, morally. In fact, I think it can be a good thing morally.' There are many other good things you can do. You can donate to charity. You can volunteer. You can have a career that has impact. But this is one way I think of making the world a better place, is to have kids and bring them up well.

RR: My guest today has been Will MacAskill. His book is *What We Owe the Future*. Will, thanks for being part of EconTalk.

WM: Thanks so much for having me on. It was a really fun and interesting conversation.

RR: I agree.

EconTalk

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The Dangers of Social Media

How can we raise anti-fragile children?

JONATHAN HAIDT
THE GOOD LIFE

Interview by Andrew Leigh
Illustration by Vaughan Mossop

Andrew Leigh: Jonathan Haidt is a Professor at New York University, originally focused on cultural psychology, who moved into political and moral psychology in recent decades. His three big books, *The Happiness Hypothesis*, *The Righteous Mind* and *The Coddling of the American Mind* with Greg Lukianoff, explored big questions in modern psychology. Let's start with the three untruths that you say are at the heart of *The Coddling*. Tell us about what those three untruths are.

Jonathan Haidt: So, my first book was called *The Happiness Hypothesis*. It was about ten ancient ideas and whether or not they're true. It seems as though students on some American college campuses have read that book and then decided to do exactly the opposite of ancient wisdom. The first great untruth that Greg Lukianoff and I see operating on many campuses is what doesn't kill you makes you weaker. The second is always trust your feelings. And the third is life is a battle between good people and evil people. And each of those contradicts ancient wisdom and basic psychology about how to get along with people and lead a happy, productive life.

So, if we can get undergraduate students, if we can get young people, to believe all three, I can't guarantee that they will fail in life, but they're not likely to be either very effective socially or very happy psychologically.

AL: So that seems a glum prognosis for us.

JH: Yes. I am very glum.

AL: Despite the fact that on so many measures, the current generation is doing well. For example, if you look at rates of alcohol use, teen pregnancies, unprotected sex, smoking, car accidents. There are many metrics on which the current generation seem to be flourishing. But you paint a much darker picture. Tell us about your concerns about the current so-called i-Generation or Generation Z, and how that led into writing the book.

JH: Yes. So the origin of the book was that my friend, Greg, who runs a free speech organisation defending college students' right to speak against administrators overreaching, began to notice all these strange things happening in 2014, in which college students in the United States were asking for safe spaces, trigger warnings, microaggression training.

Out of nowhere, students who came in around 2014 seemed to be behaving as though words are dangerous, words are violent, books are dangerous, books should be banned or prevented from being assigned or speakers should be protested and not allowed to speak, not because they're offensive and wrong but because they are dangerous. If they were to speak, it would be traumatising.

And most of us were very puzzled by this. We couldn't really understand what was happening. It came out of nowhere in 2014. The millennial generation, the students born between 1982 and 1995 or so, were similar to previous generations. They liked to tell jokes. They could stand to hear things that they found offensive or they could ignore speakers. But the students coming in in 2014/2015 seemed much more fragile.

And now you say that they're doing much better. It's true that on all these measures of deviance, Gen Z or i-Gen is much better. And so, you might celebrate and say, wow, they're not getting drunk and getting in car accidents, they're not having premature pregnancies. But it turns out it's because they're not doing much of anything. That is, if you look at time use studies, if you look at nationally representative surveys done in the United States, they show big declines in all sorts of things that we think are transitions to adulthood.

So, let's look at the percentage of 18-year-olds who got a driver's licence. (And you can get one at 16.) Now, a lot of students don't even get a driver's licence. The per cent who've ever tried alcohol. The percent who've ever gone on a date. What are they doing? They're spending so much time now, six to eight hours a day, on their devices. They're connecting by social media so they don't connect as much in person.

But you might just say, well, this generation, they're online. It's just different. Maybe it's just different, and maybe it's even better. I'm willing to believe that being hyperconnected makes you hyper social, makes you hyper smart. But when you look at the mental health stats, when you look at what happened to the mental health of Gen Z, beginning around 2012, plus or minus a year or two, the rates of depression, anxiety, self-harm and suicide start rising. Somewhat for boys, and unevenly, not on all measures, but they are going up for boys, but they're going up on all measures by a very large degree for girls. And this is happening in the US, the UK, Canada.

Before I went to Australia, I found the stats for Australia. You have it there too, although not as sharp as we do. And in New Zealand, although in New Zealand, they're about three or four years behind. But it's happening in all the English-speaking countries. I think this is a disaster. As far as I know, it's the biggest change in mental health that we've ever seen in a generation.

AL: What you document for the depressive episodes is pretty striking, an increase particularly among adolescent girls, from what, about 12 per cent in 2004 through to almost 20 per cent in the latest survey, and also increases in self-harm and in suicide, suggesting that we're not just picking up changes in willingness to report but that there's something pretty substantial going on in the data.

JH: Yes. That's right. And it was a very reasonable hypothesis a few years ago when these rates started going up. There were some people who said, oh no, this is nothing to worry about. Gen Z is just so comfortable talking about mental health. This is a good thing. But I think it's pretty clear that that's wrong, because the only things that are going up are depression and anxiety and the behavioural manifestations of them. So, it's not as though they're suddenly talking about bipolar disorder and schizophrenia. No, it's not just that they're comfortable talking. It's that they really have higher rates.

It's in the behaviour too, it's in hospital admissions' data. Many, many more girls are actually admitted to hospitals because they have cut themselves. And the rate for older teen girls in the US and UK is up something on the order of 50 per cent to 70 or 80 per cent. The rate for pre-teen girls, so 10/11/12-year-old girls, which was very low to begin with, is up 189 per cent in the United States.

AL: And one of the striking things about this which I think we really need to emphasise is you're just talking about a shift in the last five years. So normally, when we're speaking to a social psychologist or a social scientist of any sort, they're documenting trends that began twenty years ago because that's the stage where we feel as though we've got enough data to attack the problem.

But from the point at which your Atlantic article came out to the point at which your book came out, just in that three-year period, really a whole lot more data seemed to emerge, backing up your hypothesis.

JH: Well, that's right. Because when Greg and I wrote up our article for *The Atlantic* magazine in 2014, and it came out in 2015, people were talking about the mental crisis on campus and they were saying that the counselling centres were overwhelmed. And so, it was my job, as the social scientist, to find the data on

> “They’re spending so much time now, six to eight hours a day, on their devices. They’re connecting by social media so they don’t connect as much in person.”

a rise in depression. I couldn’t do it, because it takes a couple years between the time a kid is depressed and the time it shows up in a study that you can access. And so, we had to basically just say, well, people are talking about this and we have one study showing a survey of mental health centres. That was all we could find in early 2015. It was only in 2017 that the numbers started coming out, and the spike was dramatic. And we thought, well, maybe it’s a fluke, a one-year thing. But no, it’s continued. And then once we found that it was exactly the same in Britain, Canada, and then it’s similar in Australia and New Zealand, we were pretty confident this was, if not global, at least prevalent in all the English-speaking countries.

AL: And you talk about a couple of big factors driving this: social media and changes in overprotective parenting. Talk us through how you think those have affected the upbringing of Gen Z.

JH: Yes, let’s start at the beginning in terms of what is healthy childhood development. So, if you go back to kids born in the seventies or eighties, at least in the United States, this was during a gigantic crime wave. It was really dangerous in our cities. We lived with the threat of nuclear war. That’s what I grew up with. But even still, kids went out and played. We let kids go out and play.

And the norm... I’ve surveyed people all over the country. Between six, seven and eight is when American kids were given independence. That means we’d go out, we’d play, we’d ride our bicycles, we’d get lost, we’d get in fights – we had to figure out how to fend for ourselves.

Now, human nature is anti-fragile. Kids are not fragile. We actually need challenges. We need to get in conflicts and resolve them. We need to get lost and find our way back. That’s how we grow. It’s just like the immune system. The immune system must be exposed to bacteria, dirt and germs in order for it to develop. So even when things were dangerous, somewhat dangerous, kids went out to play and they developed normal social skills, normal strengths. And so that’s the way things always were.

In the United States in the 1990s our crime rate was plummeting and the threat of nuclear war vanished – it was an amazing decade. I was in my twenties and thirties and I felt like, oh my god, this is Shangri-la. I never believed, I never expected life would be so good. The US even ran a budget surplus, which it had not done in many decades. So, it was a golden age. But in the 1990s, for some reason, we freaked out about child abduction and we stopped letting our kids out. There were some stories of child abduction. We have 350 million people in our country and about 100 to 120 times a year kids are truly kidnapped. It almost never happens. It’s almost always the non-custodial parent if a kid is missing, but it happens a few times that a kid is genuinely kidnapped.

But the news media covered it so much that, for a lot of reasons, we just freaked out in the nineties and said, no more. You’re not going out. If you go out, you might be abducted. And then by the early 2000s, no American had seen a child out on its own in a park or on the street in so long that it began to seem very strange, that if one was caught playing in a park, the parents could be arrested or at least sent to Child Protective Services for neglect.

So we changed our ideas about childhood and we thought, the world is dangerous, kids have to be protected. So, these same kids born in the mid-nineties, who didn’t get normal childhood exposure, they get social media when they’re still in middle school. This, I think, is why there’s the sharp dividing line.

The millennials didn’t get social media until they were in university, and there was no sign that it damaged them. But if you were born in 1996, Gen Z, you were able to get it. You’re ten when Facebook opens up to the world in 2006. And then social media gets much more toxic between 2009 and 2011. It gets much more common and much more toxic. So that’s when I think it starts really changing kids.

AL: And in terms of parents’ concerns, you have a lovely statistic about the length of time that you would need to leave your child unaccompanied in a

car before he or she would be abducted by a stranger. How long is that?

JH: Yes. Somebody, I forget who, calculated that if you look at the fact there's only about 100 abductions a year, they figured, if you just park your car in a parking lot and you leave your child unaccompanied, how long would you have to leave them before they got abducted? And the answer is 700,000 years. So, of course, it depends on the neighbourhood. In some neighbourhoods, it will be quicker. But the point is we worry about things we shouldn't worry about and we don't worry about things that we should worry about.

So, in fact, the world is physically very safe. We should be sending our kids out to get physical experience, and the physical world is quite safe, whereas it turns out that the online world is not so safe. And we said to our kids, you know what? I'm busy. Go ahead, here's an iPad. And six hours later, the kid puts the iPad down.

Now, the data doesn't show that watching videos is bad, so I don't want to say that electronic device use is necessarily bad. The data is more complicated on that. But studies do clearly show social media almost always emerges as much worse than just device time or watching videos.

AL: Yes, and I love the idea of antifragility applied to parenting. I think about the concerns that people sometimes have when they see a runner in a major event having a heart attack, and forget that far more people die of heart attacks because they didn't go for a run than die of heart attacks because they did go for a run. You also speak about the change in research around nut allergies. Say a little bit about that, because I think there's a lovely metaphor there.

JH: Yes. So, in the United States at least, we all took peanut butter and jelly sandwiches to school when we were kids. But that began to change in the 1990s because some kids have a peanut allergy. I forget the exact number, but it was in the order of one out of every several hundred kids used to have a peanut allergy in the 1990s. And then a study that used the exact same methods, done by the same people, around I think maybe 2010 or so, found that the rate had tripled and that it was going up in many other countries, but only in countries that tell pregnant women to avoid peanuts. And so, as epidemiologists and allergists looked at this, they thought, wow, maybe it's the deprivation of peanuts that's actually causing the allergy. They did a very direct experiment, recruited about 600 women who'd recently given birth and whose kids were at risk of a peanut allergy because they had other immune issues.

And half of them they told the standard advice, which is don't go near peanuts, don't eat peanuts while you're lactating, don't give your kid anything with peanuts, and half, they gave bags of an Israeli snack food called bamba, which is a puffed corn thing with peanut dust on it, a bit of a peanut-butter flavour. And they said, here, give some of this to your kid two or three times a week. And they monitored the kids. They didn't just say, go home and tell us if the kid survives. They monitored them. And then at age five, they tested them all thoroughly. What they found is that of those who followed standard advice, 17 per cent had a peanut allergy. So, for the rest of their lives, they're going to have to really worry when they eat food, when they go to a restaurant, carry an EpiPen with them. But for the group that was exposed to peanut dust, only 3 per cent had a peanut allergy.

So, once you understand that the immune system is anti-fragile, the immune system is a complex system that requires shocks, that's what a vaccine is, it requires triggers in order to cause it to develop antibodies. Then you realise, if you deprive your kid of the antigens, the kid doesn't learn how to make antibodies. So, this is what we opened the book with. I think it's a great example. Really, everybody understands that aspect of the immune system. We need vaccines. And then think about raising your kids in an environment... My kids go to New York public schools. No teasing is allowed, no exclusion is allowed. This is terrible. It seems humane. It seems like, oh, let's make them be nice to each other. Imagine a kid making it to the age of 18 with hardly any teasing or exclusion. Now, of course, on social media, it's different. They can't avoid it there. But they

“We should be sending our kids out to get physical experience, and the physical world is quite safe, whereas it turns out that the online world is not so safe.”

don't develop the normal skills in physical and real social life. So, when they are teased or excluded, it's much more painful than it would've been for previous generations.

AL: In a similar vein to the peanut study, you advocate better playgrounds, avoiding what you call safety-ism and encouraging kids to do somewhat risky activities. What do you think an ideal playground looks like? And what is some of the cutting-edge work being done on this?

JH: Yes. There is a whole really fascinating field of play studies. This was the most fun chapter to write. I think it was chapter nine of the book. I did a lot of research into play. There are a number of great researchers who study animals. All mammals play. If you think about it, why would a baby elk or baby squirrel or baby tiger, baby anything, run around and play? You're exposing yourself to predation. And the answer is that the mammal brain is this big thing that requires a lot of experience, and play wires up the brain for adult skills. The whole point of having a secure base, the whole point of attachment theory, is your parents provide a secure base that you can run back to if something goes wrong, but the point of that secure base is that you can venture off a little further each time or each year, practice the skills you need, take risks, take bigger risks, take bigger risks. That's the mammal developmental plan.

And when you watch kids when they learn to skateboard, they don't just go down a shallow hill. Now they go for a steep hill, and then they go down staircases. The kids are trying to dose themselves with risk. Our brains need this. Our brains need to wire up so kids seek out the right level of risk.

When I was growing up, our playgrounds were such that we had seesaws. And on a seesaw, you can get hurt, because if the other kid jumps off, you go down and you smack your butt on the ground. So, you have to be careful and you have to figure out how to trust each other. No playground I see in America has a seesaw anymore because kids could get hurt, which means that they don't ever have an opportunity to learn how to not get hurt. A good playground requires small risks. You don't want anything where the kids will die or break their neck. But you do want a playground where they can get a little bit hurt. In Britain, they're way ahead of us. In Britain, they have started to add risk. They have started to put construction materials, bricks, wood, things like that. Kids love it. And yes, they might bend their finger, but then they learn to not bend their finger.

AL: You've also spoken about the importance of allowing your child to go out unsupervised, although you have a lovely tale about the fact that with your daughter in New York, she needs to go with a special licence, a special letter from you, telling anyone she meets that she has your permission to be out in the street.

JH: Yes, that's right. I'm friends with a woman named Lenore Skenazy, who wrote a book called *Free-range* Kids. She's a wonderful, wonderful woman. She's a journalist. And when her son was nine, back around 2009, I think it was, she let her son ride the New York City subway home alone. New York was quite safe by then, but people still had the idea that if you let your kid ride the subway, that's child abuse. You're asking for your kid to be abducted. So she let him because he really wanted to. He knew the subway system. And he did it. He got home and he was exulted, he was thrilled, and he wanted to do it again. Well, this is normal development. This is how you cultivate skills.

But many people freaked out, some news stations labelled her America's worst mom. And so she wrote a book called Free-range Kids, and then she founded an organisation called Let Grow. I'm on the board. Our website, LetGrow.org has all kinds of research and advice on how to raise stronger, healthier kids.

When I got to know her and I realised how important it was for me to let my kids out, beginning with my son who is now 13, I would send them to the supermarket literally across the street from my apartment building. But I was worried that he could be stopped and then I could get in trouble and he could get in trouble. So, I wrote up a little jokey licence that said: 'To whom it may concern, I have my parents' permission to do errands in the neighbourhood. We think it's healthy for me to have some independence. If you think that it is improper or unhealthy, please, number one, ask yourself whether you were allowed out when you were my age. Two, read The Adventures of Huckleberry Finn. Three, call my parents and they will tell you about New York State Law, which allows parents considerable leeway, etc. So, it was kind of a joke. But the point is that we have a nation of busybodies who think that a ten-year-old kid should not be walking on the street without a parent.

AL: You also have a range of other really interesting tips around allowing your child to attend overnight camp, riding a bike around the neighbourhood, seeking out other kids who will want to explore, but also a series of suggestions for parents encouraging children to debate different ideas. I wonder if you might say a little bit more about this and about what good argumentation within a household looks like.

JH: There are so many skills that kids need to learn. And they don't learn them by lecture. They learn them by practice. And one of the things that we noticed, that Greg noticed, beginning 2014/2015, is that many

students began interpreting intellectual life not through a lens of what's right and wrong or true or false but what's safe or dangerous. And if a student says something in class and someone challenges them or says, no, I disagree, or I think you're wrong, they would increasingly take that as an attack. You're attacking me. You can't do university life like that. You can't have a university if disagreement is considered attack. We think it's important that students learn well before they come to university how to disagree well. Skills of argument and debate, but even more importantly, just skills of getting along with others without just suppressing what you believe. We have some resources on our website at TheCoddling.com. Also, some of my colleagues and I have created a programme called OpenMind. If you go to openmindplatform.org, it walks you through why it's so hard to have arguments, why we suffer from confirmation bias, how you can start a discussion on the right foot. There's all kinds of advice out there, there's all kinds of research and common sense about how to do it.

AL: Just before we finish the issue on debates, one of my favourite lines from your book about how to debate well is to argue as if you're right, but to listen as if you're wrong. I thought that was a beautiful encapsulation of what it is to be an effective debater and a good protagonist.

JH: Something I've begun to see is a lot of things we're doing are making young people weaker, and I would also say dumber. Or rather, if you deprive them of debate and dissent, if you don't have them in a culture of debate and argument, they don't sharpen their skills and they don't hone their abilities.

So it's really important for young people to seek out experiences that make them tougher and smarter. And one of the best ways I've found to get smarter is to ask people to show you where you're wrong. So, if you have an idea, put it out there and ask people, where is this wrong? Twitter has all kinds of problems. It's destroying democracy, in my opinion. But it's a pretty good way to put an idea out there, and then you read the comments and people quickly point out where you're wrong.

If you have an attitude of I don't want to be attacked, I don't want to be humiliated, you're not going to put anything out there and you're not going to get smarter. But if you realise we are all so limited, it's really hard to find the truth, we're really biased to protecting our current beliefs – if you start from that position, then you realise you can't get smart on your own. You need people who don't share your confirmation biases to critique you. You need people to disprove or challenge your beliefs so that you can either abandon those that are bad or find better evidence to support those that are good. Now, here I'm basically just channelling John Stuart Mill. He said all of this in 1859 in On Liberty, which is still one of the best books ever in the liberal tradition.

AL: You've done this beautiful illustrated edition of his chapter two, this *All Minus One*, co-edited with Richard Reeves and stunningly illustrated by Dave Cicirelli. That's one of the resources that is out there for anyone to download and I'd strongly recommend it.

JH: At heterodoxacademy.org/mill, you'll find a free digital edition of it, or you can purchase a print edition.

AL: You talk too about the benefits of cognitive behavioural therapy, which goes back to the stoics, and some useful tips for kids using cognitive behavioural therapy. One of them I really liked was to suggest to kids that when you have negative thoughts, put them in a Daffy Duck voice to make them seem less serious. What is the guts of cognitive behavioural therapy? And why is it really useful for i-Gen at this particular moment?

JH: The guts of cognitive behaviour therapy is basically the insights of Buddha and Marcus Aurelius. Basically, the stoics. I have started reading Marcus Aurelius every morning. His meditations are just brilliant.

AL: Yes.

JH: Marcus Aurelius basically tells you the opposite of the great untruth. The wisdom is extraordinary. Marcus Aurelius says, choose not to be harmed and you won't feel harmed. Don't feel harmed and you haven't been. It's the basic point that Buddha made also, that our life is the creation of our minds. That objective factors don't influence us directly. Physical things do, but most of them are social and they only influence us through our filters. Here's another one. You don't have to turn this into something. It doesn't have to upset you. Things can't shape our decisions by themselves. This is ancient wisdom. In the 1960s, Aaron Beck, a psychiatrist at the University of Pennsylvania, discovered that when he challenged the distorted thoughts of his depressed patients and he taught them to challenge their own distorted thoughts, they got better.

Now, Freudian doctrine at the time said, don't bother, the cause of the depression has something to do with their sexuality at the age of three and yada-yada. But Beck found that people think themselves into a hole, and if you teach them to challenge their distorted beliefs and to look for evidence for them, you can actually break the cycle and they feel released from their sadness or their anxiety.

> “The whole point of having a secure base, the whole point of attachment theory, is your parents provide a secure base that you can run back to if something goes wrong, but the point of that secure base is that you can venture off a little further each time or each year, practice the skills you need, take risks, take bigger risks, take bigger risks.”

That’s the basis of cognitive therapy. We can all probably think of a time when we catastrophised. Something little happened that we made a big deal out of. Cognitive behavioural therapy is a way of tuning up your thinking. And why we’re so excited about it is not just because it saved Greg’s life – he had a suicidal depression in 2007 and learned CBT – it’s that it’s not just for people who are depressed. It is basically critical reasoning skills.

With universities, what we want is students to come out much better reasoners than when they came in. Much better at making claims based on evidence and then backing up their claims with evidence, and then changing their minds if the evidence changes. This is something that’s very hard for people. It’s not natural to do this. So CBT basically makes you a better thinker.

AL: You also speak about the role of social media and point out that a number of tech titans in Silicon Valley don’t let their children use devices. What are some tips for parents in managing social media and device use, which, as best I can tell, has become the number one topic of conversation among parents of young adolescents?

JH: That’s right. We’re all wrestling with this. My kids are nine and 13. And for years, we wrestled with it: how long have you been on that? How many episodes did you watch? Time to put that away. No, don’t do that. First, realise that device time is not necessarily bad, but it will expand to push out everything else. You definitely don’t want your kids on their devices six or eight hours a day. They’re not going to do anything else.

So three simple pieces of advice. One, all screens out of the bedroom by a fixed time every day. Everybody just knows, at nine o’clock, you put your laptop, your iPad, whatever it is, you put it on the kitchen counter or in a kitchen drawer or in a box or something. There is no reason why you should leave an iPhone or iPad in the kids’ bedroom, because some kids will be checking. They’ll be checking their social media, they’ll be checking texts instead of sleeping. So, don’t do that.

Number two, no social media, well, I think until 16, but that’s unrealistic as long as everyone is on it at age 11, but definitely no social media until 13. Most parents let their kids lie and create an Instagram account when they’re ten or 11. And while the jury is not entirely decided, there is some contradictory evidence, at TheCoddling.com we’ve collected all the evidence, it sure looks like social media is contributing to the rise in depression and anxiety, especially for girls.

The correlational studies are very consistent and the experimental studies are unanimous. All five show a causal effect. The time lag studies are mixed. There are some time lag studies pointing both ways. So I can’t say that everything is locked up. But it’s generally looking like social media is a major contributor, or a contributor to the depression epidemic.

The third piece of advice is work out a time budget with your kids. So I’d like to be able to tell you, oh, two hours a day and maybe less on weekdays, more on weekends, but I can’t tell you that. It depends on what your kids are doing. It depends on what the alternatives are. It depends on a lot of things. It depends on the kid. But the one thing I can say for sure is that if you don’t have any kind of budget, there are hundreds or thousands of psychologists in Silicon Valley who are working night and day to keep your kid on the device every waking moment. You don’t want that.

So when you talk to kids, what I find is that Gen Z is not in denial. They know it’s a problem. They know social media is a problem. And so if you work out, what do you think the policy should be? And what’s

your plan for sticking to it?

Apple I think, is looking pretty good here. Their parental controls are really good. They really work. So I urge everyone to start using those. Work out a budget with your kid, and then set it on the phone, and then that's it. That solves the problem.

AL: We've spoken a lot about raising kids. And for me as the father of six-, ten- and 12-year-old boys, it's obviously something I'm very enthusiastic about learning more about. But the book had its genesis in what was going on in universities. So I wonder if, as we draw the conversation to a close, you might say something about what's gone on in universities and what you think makes a wise university, and how we might make our higher education institutions wiser.

JH: Sure. First, let me just say that listeners should go to AndrewLeigh.com/Andrew to look at the photos of your family. And your youngest son sitting there with that expression, that sulky expression on his face is just priceless. I love that photo of your family.

But in terms of a wiser university, I think the Greek concept of telos is very helpful. Aristotle interpreted things in terms of their telos. The telos of a physician is to heal. The telos of a university is to discover and disseminate knowledge, to find truth. And I think that universities in the United States have really lost their way in that they're giant, complicated institutions working towards many purposes, and they often lose sight of the truth-seeking function.

I think that when we talk about speech, we're arguing endlessly about speech. And if we do it in the framework of diversity and inclusion, those are important considerations, but we end up then having the standard therapeutic, political norms that we have in many other parts of our society. And instead, I think what we need to do is focus on what's our purpose? Our purpose is the discovery of truth. And so, we don't need free speech per se. That is, we don't need a norm that says anyone can say anything. That's not the point. But we must have norms that say that people are encouraged to speak up, people are encouraged to disagree when they have evidence or arguments against someone else, and that it should be done civilly.

So, I think a wise university is one that is focused, laser like, on its telos. And policies all revolve around that. An unwise university is one that is always reactive. Oh my god, the newspaper covered this event at a fraternity, oh my god, we'd better put out a statement, we'd better limit this, close this down, ban this.

People running many organisations in the United States are nervous now. Leadership is getting a lot harder, social media and political polarisation are making things much more explosive, and I think

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universities are kind of losing their way. Australian universities, I think, are in a very good position. You don't have nearly as much political protest and stuff from your students. They mostly don't live on campus. They don't live in a closed community of 18 to 21-year-olds.

And so, when I was visiting, I gave talks at the University of Melbourne, University of Sydney, met with administrators in both cases. I think you're in pretty good shape. American trends are coming your way, but there was widespread agreement that you don't want the things that happened in America to come to Australia. And so, if you have clear policies, if you keep in mind the purpose of the university, I think you'll make it through. Now, there is a report by, French, I forget his first name.

AL: Robert.

JH: Robert French, that's it. Thank you. So it's generally a very good report, but it has a few giant loopholes, reasons why it's okay to shut down speech because the university has an obligation or a duty to protect wellbeing. Well, that's what they say in America, like, oh, we've got to ban this speaker because it'll be traumatising to some of the students. So I think the

French report, if it was implemented as written, would have two giant loopholes that would allow anyone to shut down any speaker, anytime. But I'm hopeful that those loopholes will be closed. The other is quality of scholarship. So you just say, oh, that's shoddy scholarship, and then you can shut them down.

AL: You talk in the book about the Chicago statement on principles of free expression which has been a useful touchstone in the US context. As we draw the conversation to a close, let me ask you a few questions that I ask all of my interviewees. What advice would you give to your teenage self?

JH: What advice would I give to my teenage self? Let's see. It's possible that I would give no advice because I had a really wonderful mother. My mother really knew to let us make our own mistakes, to get us the training and skills we needed to be successful, to not step in and help us. So I was born with many advantages, but one of the main ones was that I had such a skillful mother. And so, I made mistakes and I think I was able to make the right ones and learn from them. So, I don't know. That's a good question. I should have a great answer for you, but I don't.

AL: What's something you used to believe but no longer do?

JH: I certainly used to believe that religion was stupid and evil. I've been an atheist since about the age of 14. I had a Bar mitzvah at 13 and I wasn't an atheist then, but by 14 or 15, I was an atheist. And by 17 or 18, I hated religion, thought it was stupid. And I was the sort of boy who would've become a new atheist in his thirties when Richard Dawkins and others were writing all those books.

But as a result of doing my research on morality and human evolution, I've come to see that religion, of course there are toxic forms of expression and there are positive forms, but that overall, at least in the United States where we have a competitive market and religions are competing with each other to attract people, religions generally increase social capital, they help raise children with self-control, they instill moral virtues. So, I don't want to give a blanket praise, but my point is I used to be an angry atheist who hated religion, and now I'm a non-angry atheist who thinks that we need religion or something like religion.

And when I see the substitutes for religion, those are really bad. What I mean is, in the United States, by far the fastest growing religious category is called spiritual but not religious. There is a vast spiritual emptiness in the United States. People have said that at least since the sixties or seventies, but it's really bad for Gen Z. It's related to their depression and anxiety. And because there's this vast spiritual emptiness, I think a lot of them are attracted to political movements which they approach in a religious way.

So, it's great to work against racism and for gun control and for the environment. I certainly support all of those efforts. But what I see happening is many students approaching it like a religion. And if you have a religion and you have blasphemy laws, no one can dissent, no one can raise objections, and so you get bad policies promoted and you get the sense many of them seem to think that intimidation is appropriate because they're fighting for a good cause. So, in a funny way, the formal religions which have evolved over a long time are much more benign, and the new religions, the quasi religions, I think these days can be kind of savage.

AL: Well, and these new spiritual movements seem to have at their heart spiritual truths which are pretty close to the three untruths that we started the conversation with. What doesn't kill you makes you weaker, always trust your feelings, life is a battle between good people and evil people.

JH: Yes, that's right. That's right. A lot of them do. And we should be clear here. We're talking about movements that tend to flourish more on the left and in progressive circles. But, my god, the far right, we're looking at illiberalism and social media driving violence.

So in much of my writing, I'm criticising the left in that I'm on a university campus and that's where the problem is, but in society more broadly, I think the far right is really messed up. Social media is making it worse. In my own country, certainly at the national level, the Republicans are just absolutely unbelievable, even to Republicans of 30 years ago. What they're doing to the country now would be shocking to Ronald Reagan or to Republicans of 30–40 years ago.

AL: When are you most happy?

JH: When am I most happy? I am most happy when I am travelling in a foreign country, sitting in a café, reading a newspaper from another city or country, with a day of exploration ahead of me. I'm extremely high on the trade of openness to experience. I'm an awe junkie. I love the feeling of awe, climbing mountains, sitting on rooftops, watching sunsets, waterfalls. So, I guess I'm most happy when I get to satisfy that.

Although if I vote with my feet, or rather, if you look at my... What do you economists call it? Your manifested preferences by your behaviour, something like that?

AL: Revealed preference.

JH: Revealed, yes. My revealed preferences would suggest that I'm most happy when I'm working, because I do tend to work a lot. But like a lot of professors, it's because I love it. I'm just so interested in the things I'm studying, so it doesn't feel like work.

AL: What's the most important thing you do in your life to stay mentally and physically healthy?

JH: I don't do much because my life is unbalanced, in a good way. I have a wonderful wife who is very supportive of my work. I have great kids who are not problems. They're loving. I have a wonderful job. I love teaching at New York University. I have perfect job security. So, in that sense, I have a lot going for me in terms of my mental health. I don't have to do a lot.

The theme of The Happiness Hypothesis was happiness comes from between. If you get the right relationship between yourself and others, yourself and your work, and yourself and something larger than yourself, then you will live at the upper end of your range of potential happiness.

And I didn't have that early in my career. I didn't have it when I was an Assistant Professor at the University of Virginia. Then I met my wife, got tenure, had kids. That happened all at once. So I don't have to do much now. I can pretty much work all the time, except for when I'm with my family. But what I have started doing, as I said, I started reading Marcus Aurelius in the morning because the summer that Donald Trump was threatening nuclear war with North Korea, we didn't know what the hell was happening in our country. This was the first six months of the Trump administration. And the trajectory was such that it was quite possible to believe that the country was going to implode or get into a nuclear war within a few months.

And I was quite anxious. And I found that reading Marcus Aurelius really helped. Because, my god, Marcus Aurelius, Emperor of Rome in a time of military conquest and challenges, he'd seen it all back then. He'd seen it all and he gives advice for how to live: to watch the courses of the stars as if you revolved with them. To keep constantly in mind how the elements alter into one another. Thoughts like this wash off the mud of life below. He's just a constant reminder...

AL: That's very good.

JH: To step out of the pettiness of everyday life, reconnect with the universe, the vastness of time and space. And he talks over and over about how we'll all be dead, about all the great men of the past are now dead, we have only this brief moment between an infinite past and an infinite future. So, it really keeps you grounded and centred, and it gives you perspective. I'd say reading Marcus Aurelius' *Meditations*, the Gregory Hays translation is the best one I've found, that really helps my mental health.

AL: And finally, Jonathan, which person or experience has most shaped your view of living an ethical life?

JH: The trite answer is to say my mother and my father. Certainly, they were both great role models. My father was extremely honest, and my mother would praise his honesty in front of me and my sisters. I think that was a very powerful combination. So, my parents certainly did.

Then I think just being inducted into the Academy, having advisors who loved ideas and really modelled intellectual integrity. You're never taught, don't make up data, don't say anything untrue. You're not taught that formally. But from the way people behave, you can tell what they hold sacred. I had just great advisors in graduate school and in my post-doc at the University of Chicago with Richard Shweder. So, while they weren't teaching me ethics per se, they were teaching me how to be a good professor, a good researcher.

AL: Jonathan Haidt, moral psychologist, thank you so much for sharing your wisdom on The Good Life podcast today.

JH: Thank you, Andrew. It's been a pleasure.

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The History of Inequality is a Political History

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THOMAS PIKETTY
CONVERSATIONS WITH TYLER

Interview by Tyler Cowen
Illustration by Vaughan Mossop

Tyler Cowen: Thomas Piketty has a new book out, *A Brief History of Equality*, which, in my opinion, is the very best introduction to his overall views. Thomas, welcome. Let me start with some questions about France. As you've pointed out, France adopted a progressive income tax relatively late in its history. Just how egalitarian, as a country, do you think France actually is?

Thomas Piketty: Well, as I stress in my new book, there's been a long-run movement towards more equality in history, together with a movement towards more economic prosperity, and I argue that the two movements really came together. France is part of this movement. Each country has its own limitations and its own hypocrisies with equality and inequality.

France has lots of limitations, lots of hypocrisy in the way it deals with very unequal access to funds, different funding in higher education, or a lot of discrimination that is not well addressed. But, by and large, if I take the big picture there's been a movement towards more equality of income, more equality of wealth, more equality in access to political power, more equality in access to education and health.

Now, this has not been a steady process. This is a revolution towards more equality that has taken place through political mobilisation, social struggles. The story I'm telling is really a story where the movement towards more equality starts at the end of the eighteenth century, typically – in the case of France, with the French Revolution, the abolition of aristocratic privileges, also the slave revolt in Saint-Domingue. These two events – the abolition of aristocratic privileges and the slave revolt in Saint-Domingue – are the beginning of the end of aristocratic society, societies based on privileges, and slave and colonial societies. But you can see very well how these two movements, these two evolutions towards more equality, are not over.

They continue during the nineteenth century, twentieth century, with the end of slavery, the end of colonialism, the rise of social security, the rise of progressive taxation. But in France, just like in the

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US, there is still a lot of discrimination today. There is still a lot of gender inequality today. There is still a lot of political inequality in access to voice, access to participation, political power. There’s still enormous concentration of wealth. To some extent, it has increased, especially in the US in recent decades, less so in France or in Europe. In the long run, there’s a movement towards more equality, but I’m not saying this to conclude that everything is great, and we should just stay like we are. I’m saying this in order to suggest that this movement could and should continue. I think it will continue because in the end, this is a way to address some of the biggest challenges that we have to address.

TC: For someone trying to place you in French intellectual history – let’s say they’re not an economist, and they want to know, which traditions from the French Left are you closest to? Would it be utopian socialists, critical theorists, objective Marxists, 1968 crowd? Where do you place yourself in your own country’s history?

TP: Okay, this I can answer more precisely. I will say, first, none of the above. I would put myself more in the tradition of the Annales school. I don’t know if this rings a bell for you or not.

TC: Of course.

TP: There’s a tradition of research in social and economic history that was particularly active in France, I would say, between the 1930s and 1980s, with people like Braudel or Labrousse. These are people who started working on the history of the distribution of wages, for instance, during the eighteenth century, in the period going back to the French Revolution. Is the French Revolution due to the fact that wages were lagging behind land rent? That was one of the big questions that these people were asking. In a way, what I’ve been doing is to tring to pursue this tradition in social and economic history, with also a strong influence from Anglo-Saxon research in this area: Kuznets, Atkinson. There’s a long tradition also of British and US historians and economists and social scientists trying to collect this kind of data on incomes in history. That’s what I’ve been doing. I don’t feel very close to the philosophical or political traditions you refer to because my work has mostly consisted of trying to collect these historical data sources and then, of course, to propose some interpretations of these data sources. But I feel I’ve always been very close to my sources. This is what has kept me busy 95 per cent of my time for the past 25 years or so.

TC: When I read Braudel, it strikes me there’s something quite conservative about the argument. I don’t mean politically conservative, but I mean literally conservative – the sense of long structures stretching through decades or even centuries. Do you share that with him, or are you more politically radical?

TP: You’re right. I don’t know if this makes me more politically radical. You’re perfectly right that one big difference between the work I’ve been doing and the work people like Braudel or Labrousse were doing is that I had to deal a lot with the twentieth century, whereas these people were working a lot on previous centuries – eighteenth century, nineteenth century, or even before in the case of Braudel.

Working on twentieth-century data and, in particular, the enormous reduction of income inequality during the twentieth century led me to a different kind of perspective and a different kind of thinking. To be very precise, the political dimension is so much more important and, in a way, unavoidable and impossible to escape when you study the twentieth century. When you study the eighteenth or nineteenth century, maybe you can have this Marxist, or economic, perspective stressing long-run evolution, these deterministic economic forces. When you study the twentieth century, politics is everywhere: The First World War, The Second World War, the Great Depression, the creation of social security systems, the development of progressive taxation, decolonisation, end of apartheid. Politics is everywhere if you want to understand the evolution

of inequality. I would say it's also, to some extent, the same for the nineteenth century and the end of the eighteenth century. I think the history of equality or inequality cannot just be an economic history. It has to be a political history because, if you want to account for what you see, if you want to explain what you see, it's political processes–sometimes revolution, sometimes tax reform, sometimes political confrontation of all sorts–play a major role. I had to develop this perspective and, indeed, this is a big difference with the Annales school.

The Annales school were not confronted with the same kinds of issues that I was confronted with just because I write later than them with data covering the more recent period, so I had to develop a different perspective and a different kind of interpretation. Tracing the role of politics and political institution, fiscal institution, social institution, and the like.

TC: As you know, there's a competing longue durée tradition–if you look at the work of Greg Clark and Neil Cummins–on surnames. They take data from England, from Sweden. There's one paper where they have almost eight centuries of data, I think, and social status is more heritable than height. A given status relationship has persistence for fifteen or twenty generations. What do you think of that work? Do you think it's a perspective that contrasts to yours and shows it's really very hard to redistribute what really matters in society?

TP: Well, this is very interesting. Every time there is a lot of historical data collection, I am very interested, and so, this is very interesting work. Now, that being said, I find the perspective a bit too conservative in a way, maybe because it's very long run. Again, my period of study is the period ranging from the end of the eighteenth century until today. This is 1780 to 2020, if you want. Over these two centuries and a half, what I see is a movement to have more equality, both in terms of political rights but also in terms of social and economic equality. What I argue is that this process is very much related to political development, political revolution, slave revolt, wars of independence, tax reform, changing balance of power between capital and labour, development of social security, development of a public school system, of a public health system. And over this period, this has led to a very strong movement to have more equality in all these dimensions, and also towards more economic prosperity, and I stress this.

Now, before this period, I'm aware that there are people like Greg Clark and others who stress the continuity across eight centuries of the perpetration of status inequality. There are also historians like Scheidel, going back to the Neolithic period or to ancient history, who stress a relatively pessimistic perspective in the sense that they say, 'Okay, without major destruction or war, you'd never have a reduction of inequality.' All this work is very interesting, but the perspective I stress is a bit different. I think it's more optimistic in a way. I think, if you look at this shorter period, but which is still very long–two centuries and a half, 1780–2020–you see this political movement towards more equality.

To be honest, I must confess that I am always a bit sceptical about some of the data sources before the late-eighteenth century, partly because I know them less well, so I'm less confident with them. Partly because, when I don't have a census, when I don't have a tax administration, when I don't even know the population that is out there and how it is changing over time, I find it very, very difficult to say, okay, did the concentration of wealth increase in Europe between 1500 and 1750? Let alone the question of did it increase between the end of the Roman Empire and 1500? I don't know the answer to these questions. I would suspect concentration of forced inequality was always pretty large in this pre-18th-century period. But from what I read–and I try to read carefully–most of what is written on this topic, I'm not sure we have the data sources to really answer these questions, unfortunately. This is why I try to focus on the more recent period, which is still very long.

TC: If I look at France in the early 1960s, as you know, the rate of finishing or even starting higher education is extremely low, but France basically is doing fine. Do you view that as evidence for the view that it's really the continuity of cultural capital that matters and not so much policy?

TP: No, because there's been a huge educational expansion since then. Between 1950 and 1990 and until today, educational expansion in France–and throughout Europe and in most of the world–has been considerable. It is true, in the 1950s, France–but to a large extent, Western Europe–was lagging behind the US in terms of educational achievement. To me, it's clear that the key reason why the US has been an economic leader at the world level for most of the twentieth century is because it was an educational leader. In the 1950s, as you know very well, you have 90 per cent of a generation going to high school in the US, whereas in France or in Germany, it's 20 –30 per cent. You need to wait until the 1980s or nineties to reach the same kind of 90 per cent going to high school and to have universal access to it. It was the same also in the nineteenth century. The US reached 90 per cent primary school attendance rate almost a century before Europe, or at least half a century or two-thirds of a century before Europe. I think that was a key explanation for why economic productivity was so much higher in the United States.

I think policy may be a bit different. Especially after The Second World War, there was an enormous educational push, not only in France and Germany but also, of course, in Japan. Then other countries in Asia also followed this push, and this has completely transformed the economic geography and the geography of productivity. And the huge advantage the US had in the middle of the twentieth century, to a large extent, has disappeared today. I think policies and institutions played a major role in these dynamics with specific political and social history in the different countries. Of course, politics is also the product of the belief system and the perceptions that families have about education, about the culture of education. So, all these different dimensions have to be studied together, obviously.

TC: As you know, Matt Rognlie and a number of other researchers have argued the relevant increase in wealth inequality really is centered in real estate and housing wealth. Do you agree? If so, isn't it enough just to be a Georgist? Can't we just do the redistribution there?

TP: If you look at the top of the wealth distribution, I don't see a lot of real estate. I don't think Matt Rognlie or anyone is saying that the huge rise in billionaire wealth in the US has anything to do with real estate. As far as I know, nobody has ever tried to put this theory on the table. I'm not saying real estate is not important. I think for middle-class assets and lower-middle-class and upper-middle-class assets – for the middle of the distribution – real estate is, of course, very important. The movement in real estate prices explains a lot of what's going on, both in terms of aggregate value and distribution. If you go back to our paper with Gabriel Zucman, which was published, now, almost 10 years ago in the *Quarterly Journal of Economics* in 2014, called 'Capital is Back: Wealth-Income Ratios in Rich Countries, 1700–2010,' you will see we have complete decomposition about the role of real estate in aggregate wealth accumulation, and it's absolutely central for many countries over many periods of time.

We cannot have any disagreement of that because this is our data. This is what we did almost 10 years ago. But that's not going to explain, for example, what happens at the top of the distribution because real estate is absolutely negligible when you look at billionaire wealth. Here, you need other stories.

TC: For the distribution overall, it seems there are a lot of papers, quite recent, like Odran Bonnet, Jordà, the Rognlie work, Knoll, Pfeffer and Waitkus. They seem to think it's primarily about real estate, if not 100 per cent, predominantly real estate. You don't agree with their estimates? Or you just think you're addressing a separate problem of billionaire inequality at the top?

"Especially after The Second World War, there was an enormous educational push, not only in France and Germany but also, of course, in Japan. Then other countries in Asia also followed this push, and this has completely transformed the economic geography and the geography of productivity."

TP: No, I think, again, it depends whether you look at aggregate wealth or you look at the distribution of wealth. If you look at aggregate wealth, then real estate is a really big part of the increase in aggregate wealth-to-income ratio, especially in Europe, less so in the US. In the US, the aggregate wealth-to-income ratio increased much less than in Europe. For the aggregate wealth-to-income ratio, especially in Europe or Japan, real estate is the sum total explanation. There's no doubt about this. Now, if you look at the distribution, it's a very different story. In fact, the increase of the relative price of real estate assets relative to, say, stock market prices or financial assets is actually relatively good overall for the middle class as compared to the very top because the middle class owns mostly real estate, whereas the top owns mostly financial and business assets. If the only force at play was the big increase in real estate price, in fact, wealth inequality should have declined, or at least top wealth share should have declined relative to the middle, which obviously is not what we see. But nobody is saying that top wealth shares have been declining in recent decades in *any* country.

By definition, the real estate argument is not going to explain what we see for the wealth distribution.

It depends what segment of the distribution you're interested in. If you're interested in the top share, if you're interested in the very top billionaire wealth – which is interesting in its own sake and is a non-negligible fraction of total wealth – I think, again, nobody's saying that real estate is explaining this. If you see a paper saying that, please send it to me.

TC: If I look at nominal income data for the US or, for that matter, Switzerland, those two countries measure as being wealthier than either France or Germany. Do you think citizens in US and Switzerland are happier than the French and Germans?

TP: If you're interested in welfare, you need to look at productivity. That's the first thing. You need to look at GDP per hours of work or income per hours of work. You probably know very well, if you look at OECD data or Bureau of Labor Statistics series in the US – which are almost similar for Eurostat series – everywhere you go to, you will see the GDP per hours of work is virtually the same in US, Germany, France. It's a few per cent different. I'm sure you know these things.

TC: Sure. Of course.

TP: In terms of welfare, of course, as economists, you know what matters is productivity, not income per se because if you have a higher income just because you work longer hours, the effect on welfare is ambiguous. It depends how you value leisure versus work, etc. Presumably, European countries decided to have more vacation and a bigger reduction of working time than the US in the twentieth century. It was not the case a century ago. In the early twentieth century, working hours were actually shorter in the US than Europe, partly because productivity was higher, so you can afford to work less. Anyway, today and in the past century, the decline in working hours has been bigger in Germany and France. Presumably, this was a choice. This was a complicated political process, but nobody in Germany or France today is proposing to divide by two the number of weeks of vacation and go to the US federal law in that respect.

In terms of welfare, my own view, as you can imagine, is that when you multiply your productivity by 10 over the past century, it actually makes sense to take some of this increase in productivity to have more vacation, to spend more time with your children and family, to spend more time traveling around the world. For me, like for many Europeans, the idea of taking only two weeks' vacation over the summer when you are so rich looks like one of the most stupid things you can do in life. But look, different people can make different choices, of course, about this.

TC: If the relationship between wealth and happiness is so diffuse, and I would agree it may be – so I'm happier than some billionaires I know – why worry so much about wealth inequality? Why not focus on inequality of wellbeing, which could be something quite different?

TP: Yes. Ultimately, what I care about is access to fundamental goods like education, health, participation in the political life, participation in economic life. Ultimately, this is what I care about. Income and wealth per se are just a mechanism and tools and ways to go in this direction. But in the end, what's really important for me is to have the highest possible opportunities and rights to access fundamental goods for everybody. This is all that matters.

TC: I see that in Paris, and I tend to think it's cultural capital, rents are very high. There are people who are not huge earners who live in Paris. They enjoy Paris immensely, as they should. They have incredible cultural capital, amenities, smart people they can talk to. They're partaking in those goods, yet there's very high wealth inequality in Paris. You can live there very well if you do it smartly. Again, why not focus on cultural capital for individuals rather than the wealth?

TP: Cultural capital is part of what I am interested in. When I look at the inequalities in education and access to education, this is about cultural capital. I try to understand the changing structure of political cleavages and who votes for whom and which party and coalition, which is a topic on which I've been working quite a bit in recent years. Cultural inequality and different access to education, reversal of educational cleavage over time, certainly is very important. But maybe I don't get exactly your question. Maybe you should tell me again.

TC: Well, if we want to make people better off, the world we live in – it has plenty of wealth, and we observe many people who are not rich who have very high standards of living because they, in the broad sense, are well educated, can enjoy amenities, can live in Paris or London on a limited income, take in what the city has to offer. Doesn't that suggest that wealth inequality shouldn't really be the focus? It should be inequality of cultural capital.

TP: Yes. I think all of this is important because if you only have high cultural capital, living in Paris or London is going be difficult, given the rent level. I think you want to care about both, and so I care a lot about making access to education more egalitarian. As I told you, in France, there's a lot of inequality and a lot of hypocrisy everywhere in terms of access to education in France.

> “
> … in the end, what’s really important for me is to have the highest possible opportunities and rights to access fundamental goods for everybody. This is all that matters.
> ”

In the US, you have work by Raj Chetty and Emmanuel Saez showing the relation between the parental income percentile and access to higher education, the level of hypocrisy about the claims that are being made about equal opportunity and blah, blah, blah. When you look at what you see in the data, we are very far from that, but there’s a lot of hypocrisy everywhere in terms of unequal access to education. In my country, in France, we put three times more public resources into the elite schools, where more socially advantaged students go to, than in the normal university scheme, where more socially disadvantaged students tend to go to. Through public funding, sometimes you actually magnify initial inequalities of resources and reduce them. There’s enormous hypocrisy everywhere. And to me, making more effective equality in access to education is absolutely central.

That being said, I also want to redistribute wealth and inheritance and property because, if you only have high education but you have no wealth at all, it’s more complicated. It’s more complicated to buy a home for your family, or it’s more complicated to start up a business.

In the long run, there’s been a movement to have more equality of labour income through educational expansion, through more labour rights. But if you look at the distribution of wealth, what’s very striking is that the top 10 per cent wealth share has declined in the long run. It used to be 80 per cent, 90 per cent of the total in the nineteenth century in Europe. Today it’s more 50 per cent, 60 per cent in Europe. In the US, it would be more 60 per cent, 70 per cent. People can disagree about the details, but these are really details as compared to this order of magnitude. Now, this decline in the very top 10 per cent wealth share has been mostly to the benefit of the next 40 per cent, which is already good. But if you look at the bottom 50 per cent of the distribution – they have 2 per cent of total wealth in the US. They have 4 per cent in Europe or in a country like France. It’s a bit better than 2 per cent, but basically, they have nothing. So, if you take, in particular, the bottom 50 per cent of children in France today or in the US today, they basically receive nothing at all in inheritance. Whereas, the top 10 per cent of children will receive 60 per cent, 70 per cent of the total. We are very far, to say the least, from equality of opportunity. This is the least you can say, which is interesting because equality of opportunity is a theoretical concept that people very often say they are in favour of. But if you try to move in a concrete manner to have more equality of opportunity, for instance, by distributing inheritance, people get completely crazy and say, ‘Oh, how could you do that?’I make a proposal about this in my recent book, saying maybe everybody at age 25 should receive a minimum inheritance. Let’s say it could be 60 per cent of average wealth. In France today, that would be €120,000 if the average wealth is €200,000 euros per adult, so everybody, say, would receive €120,000 euros at age 25. People who today receive zero would receive €120,000 at age 25. People who today receive €1 million will still receive €600,000 after the progressive taxation of inheritance and wealth that’s paying for that, so we would still be very, very far from equality of opportunity.

If you want my opinion, I think we could and we should go beyond that. But just doing that would increase the share of the bottom 50 per cent of children in total inheritance, which today is between 2 per cent in the US and 4 per cent in France. It would be 20 per cent to 25 per cent, which is still much less than 50 per cent because, after all, they are the poorest 50 per cent of children. But I think it will make a big difference in terms of real opportunity to start a business. But also, more generally, wealth has a big impact on your bargaining power in life. When you don’t own anything, when you just own zero or when you only have debt, you have to accept everything. You have to accept any working condition, any wage, any job because you need to pay your bills. You need to pay your rent. If you have a family, you need to do something, so you have to accept this. For people with millions or billions, maybe 100 is like zero. It doesn’t make a difference. But for people who are at zero, having 100, 200 puts you in a position in terms of bargaining power vis-à-vis the rest of society. It is very different. I think it’s very complementary to control capital and human capital because €100,000, €200,000–okay, that’s not going to allow you to buy an apartment in Paris. That’s not enough. But there are many other cities which, for many people, are more enjoyable, where you can actually buy an apartment

or house. You can start a business. It makes a real difference for the bottom 50 per cent of people.

TC: If I visit every major country in Europe, what I observe is the highest living standard is arguably in Switzerland – Norway and Luxembourg aside. Switzerland has one of the smallest governments, and they attempt relatively little redistribution. What is *your* understanding of Switzerland? What if someone said, 'Well, Europe should try to be more like Switzerland. They're doing great.' Why is that wrong?

TP: Switzerland. It's a very small country. It's actually smaller than Île-de-France, which is the Paris region. If you were to make a separate country out of Île-de-France, GDP per capita, I think, would actually be higher than Switzerland. Of course, you can take a wealthy region in your country and say, 'Okay, I don't want to share anything with the rest of the country. I'm going to keep my tax revenue for me. I'm going to be a tax haven based on bank secrecy.' That's going to make you 10 per cent or 20 per cent richer.

TC: It's been a long time since Switzerland relied on bank secrecy, right? Following 9/11, that Swiss advantage largely went away.

TP: Oh, that's wrong. You're wrong on this.

TC: It's the US that's the secrecy haven.

TP: No. I can tell you the banking sector and its status as a tax haven still brings an additional income of at least 10 per cent or 20 per cent to Switzerland. But I agree with you, Switzerland would still be rich even without this. But they would be a bit poorer, and they will certainly not be richer than if you compare to, say, the Paris region GDP per capita or the London region, if you take the wealthiest region. It's important to compare countries of comparable size, regions of comparable size.

You mentioned Norway. Again, Norway without the oil would be more comparable to Sweden or Denmark in terms of GDP per capita. Now, the oil is making them richer, but I think this oil should actually remain in the ground. I don't know if you've seen this incredible TV series, *Occupied*, with what's happening in Ukraine . . . This is a series where Russia invades Norway in order to restart the oil production in order to make the European Commission happy. And the European Commission looks as ugly as it can possibly look, which unfortunately is sometimes an accurate description where oil production is so important that you're ready, in effect, to tolerate things that, in fact, you should not tolerate.

TC: But Switzerland is a real country with a diversified economy. Very little of it is poor.

TP: The Paris region is a real region.

TC: But that's a clustering effect within France. France is much poorer than Switzerland. Could not France bring Swiss prosperity to–

TP: This is not comparable in size. I don't think it makes sense. Again, if you want to compare a region of about 5 million, 10 million inhabitants – which is the size of Switzerland – you find many other regions with comparable GDP per capita all across Europe. There are many good things with Switzerland, by the way. I think the local democratic system has lots of good aspects to it. The education system. I think there's a lot to learn from each of these experiments. The US has a much smaller government than Sweden or Denmark or France, but I think there's a lot to learn historically from the US, including in terms of equality. And I think the enormous educational advance that was there in the US in the nineteenth century and the middle of the twentieth century is key to understanding many of the issues I refer to.

The case of Norway shows that you can also have a very generous welfare state, and that certainly does not prevent you from being prosperous. Look, at the level of Europe, we have 27 countries in the European Union. If you look in terms of tax-to-GDP ratio, the countries with the lowest tax-to-GDP ratio are Bulgaria and Romania. The countries with the highest tax-to-GDP ratio are Denmark and Sweden. If it was enough, in order to become rich, to have a small government, Bulgaria and Romania would be richer than Denmark and Sweden. We know that things are more complicated, and it depends on what you do with your tax revenue. If you use it well, then from this evidence it is complementary with high prosperity.

TC: You've been awarded a Legion of Honor. You turned that down, if I understand correctly, on the grounds that you don't trust, or don't want, government handing out status. If you do not entirely trust governments to hand out status, why trust them so much to redistribute all this wealth? What's the political economy constraint on that wealth redistribution process where you say, 'Look, this isn't going to go the way I want it to go'?

TP: No, I believe in anonymous rules. It's not a belief; it's not a religious belief or religious faith. I study history, and I see that governments, under certain conditions, have been able to develop a public education system, public health system, tax administration, following anonymous rules, which have been working pretty well and which we can

Photograph: Heather Suggitt

improve – we should improve. Whereas deciding on an individual basis who is honourable, who is not honourable – it's a very different business. I think that governments are not elected to do these kinds of things.

TC: How do you keep the anonymous rules anonymous? There's slippage. It's not something you can easily write into a constitution.

TP: Yes, but again, if I look at the history of state construction and welfare state development in Sweden or France or Germany, I don't see what episode you have in mind exactly.

TC: In the United States, France – for that matter, most countries – there's plenty of corruption. There are people, companies that get privileges due to tariffs, due to policy. And it doesn't stay anonymous. Why trust the government so much to redistribute wealth?

TP: Oh yes, sure. The corruption you have in mind – is it in the government of Sweden or France or Germany? Or is it in the private companies?

TC: I think it's both. It's maybe higher in France and America than in Sweden. It's relatively high in Germany, actually. You have Schröder – he's put on the board of Gazprom, but you can't say Germany isn't corrupt, right?

TP: But this is when he joined the private sector. It was not when he was in government.

TC: Clearly, they were buying the services of people in German government, right?

TP: Actually, no. The example you mentioned is very important because it's exactly the example where, in fact, I don't think any of these people, when they were in government, took money. The problem is if you let them go in the private sector and join this completely

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insane level of remunerations that you observe in the private sector, this is the problem. But I don’t think, in any of these countries . . . Give me an example of a political leader who became a billionaire by taking money when he was in office. I don’t know.

TC: I think they sell their votes much more cheaply than that. Most of US Congress is quite happy to pass special interest–favouring legislation. They don’t get a billion dollars for their vote. Maybe that’s an economic puzzle.

TP: I think here, the perversity and the bad incentives come from the private sectors in all these examples, not the public sector, where you have salary scale, which in some cases could be reduced further, but which are, in general, much more reasonable than in the private sector, as far as I can see.

TC: You’ve argued France should pay reparations to Haiti. As I understand it, Haiti does not now *really* have a well-functioning government. Should France still pay? Should France wait? What’s your view?

TP: Yes, I think France should pay. Let me just summarise the story very quickly. This is an example where, when Haiti became independent and when the French state recognised – finally, in 1825 – the independence of Haiti, the French state said, ‘We are going to recognise your independence only if you pay us a huge amount of money,’ which was the equivalent of 300 per cent of GDP of Haiti of 1825, ‘in order to compensate the French slave owners for their loss of property.’ This of course was impossible to repay in one year or in a few years, so French bankers came and refinanced the debt. In the end, the debt was repaid until the 1950s. You have payment to the Bank of France until 1957. There were many renegotiations. The US was involved in the process at some point. Some of the debt was sold by the French bankers to a consortium of US bankers. Anyway, to make a long story short, Haiti effectively repaid between 1825 and 1957 – almost a century and a half – in effect, to compensate the French slave owners for their loss of property. I think it is impossible to say today, ‘This is too old, we don’t care,’ because there are reparations that are being made today for expropriation and injustices that took place during The Second World War, or sometimes even during The First World War. So, if you say, ‘For Haiti, this is too late, and for this other reparation or expropriation during World War II, we can still do reparation,’ I think you have a problem because then, it makes it very difficult to develop a language of neutrality, of justice upon which we can build future institutional.

TC: I wouldn’t say it’s too late, but won’t the money just go into private bank accounts, and it will increase wealth inequality in precisely the way you object to?

TP: Oh, that’s certainly not what I am proposing. What I am proposing is, of course, that whenever there is a transfer for reparation or for development aid or whatever you want, we need to have a very strict monitoring of individuals who might get rich or get the money about this. Whether they are in the public sector, in the private sector – wherever they are – we should be very strict about that. That’s for sure.

TC: But isn’t that re-imposing a kind of colonialism on Haitian government? If the French are going to monitor where all the money flows within Haitian government, that would require establishing quite a bit of sovereignty over Haiti.

TP: I think Haiti should be part of that. I think there are lots of people in Haiti who would like to monitor how this money is being used. Look, I’m not saying this is simple, but reparations are never simple. I can tell you, in my country you had to wait until 1999–2000 – only 20 years ago – for an official commission to look seriously at post–Second World War reparation and Jewish expropriation during the war, so this process takes time. If you look in the US, remember, you have to wait until 1988 to see a law adopted by US Congress to have reparation for the Japanese Americans which, as you know, were interred during The Second World War. During many decades people were saying, ‘Oh

that's impossible. That's too complicated. Where are we going to draw the line? Where are we going to stop? How can you decide the amount?'I understand these are complicated decisions to be made. Is this a reason to forget about it and say we don't care anymore? I don't think so. I think this would be the worst answer. I fully recognize the complexity of the task. I'm certainly not trying so say this is easy, but I reiterate my claim that if you abandon any attempt for justice, then you are in a very difficult situation to prepare for the future. Because then, people will tell you, 'You care about this kind of expropriation and injustices, but you don't care about this other kind.' You have to try to develop some universal approach to justice in terms of objective criteria, including the distribution of income, the distribution of wealth, access to education. I don't know any other approach.

TC: I know you're very much a European federalist. In at least one interview, you argued that the major countries in the current European Union should, in a sense, secede and set up their own arrangements, part of which would redistribute more wealth. Would the net actual effect of that not be to greatly weaken the European Union we have now? You would have multiple tiers, or how is that going to work?

TP: First of all, I have been involved in writing this manifesto for the democratisation of Europe. We have made a very large group of scholars from all over Europe – lawyers, political scientists, economists. We have been proposing concrete changes in the treaties that organise the European Union. We are making very concrete proposals on improving the working of the European Union. Indeed, I am a European federalist. I am a European, what I call, social federalist in the sense that I want federalism to be able to deliver more social justice, to deliver more popular support to Europe, which today is not exactly the case. If you look at the Brexit vote, the lower-income groups voted to exit. Upper-income groups and upper-education groups voted to stay. I think there's something wrong going on.

I think we need a different kind of Europe which brings more social justice, fiscal justice. One of the solutions – certainly not the only one – is to be able to make a majority-rule decision-making over taxation. The problem today is that if Luxembourg wants to put their veto on taxation of multinationals or taxation of billionaires in Europe, then you cannot do anything together, in spite of the fact that Luxembourg, with 300,000 inhabitants, is less than 0.1 per cent of the population of the European Union, which is 500 million. It's even less than the nobility in France in 1789, where the nobility was about 1 per cent of the population, and they had veto power about taxation.

I'm saying this cannot continue for very long. In the proposal we've been making, it's not open only to large countries. It's also open to every country in the European Union, or even outside the European Union which may want to join at some point. I'm just saying that if you take Germany, France, Italy, Spain – these four countries make almost 80 per cent of the population and GDP of the eurozone. If these four countries are ready to go, I think they should go. They should try to convince as many other countries as possible. I think the current arrangement where, officially, we have the unanimity rule for all fiscal and budgetary matters . . . Remember what happened last year with the post-COVID recovery plan. In effect, France and Germany put so much pressure on the Netherlands, Sweden, etc, that in the end there was unanimity to have common borrowing and a recovery plan. But in a way, this was a fake unanimity. There's a risk that in the end, you make everybody unhappy because people are forced to agree.

In effect, what happened is that France and Germany told Netherlands and Sweden, 'If you don't want to come in, we're going to have a separate arrangement between us, and we will do it without you.' So they said, 'Okay, we will do it with you.' I don't think this is the right way to organise political decisions. I think we should have majority-rule decision-making, and not based on country against country. I think the current European parliament is not enough because, in the end, it's really the national parliament – the German Bundestag, the French Assemblée nationale – who have the political legitimacy to make their taxpayer pay more or less tax and to take budgetary decisions.

Today, we are in this strange situation where each national parliament has, in effect, a veto power on all budgetary and fiscal decisions. Indeed, I think, one way to go beyond that is to actually put these national parliament members together, maybe one week per month, in the European assembly, to vote over budgetary decisions. What will come out of this, I don't know, but I trust democracy. I think it could bring more social justice and fiscal justice. If I just take one example, which is corporate taxation, remember that the US, until Trump, had a federal corporate tax rate of 35 per cent in addition to the state corporate tax rate. Whereas in Europe, corporate tax competition had led corporate tax rate to fall to 20 [per cent], 10 [per cent], etc, which is very paradoxical in a way, the fact that Europe has led the movement towards more tax competition and corporate taxation, because Europe has a bigger welfare state to pay for than the US. I think this shows that political institutions – the fact that you have federal corporate tax and income tax in the US but not in Europe – make a difference. Anyway, we could talk a lot more about this, but that's basically my view.

TC: If we really want to limit wealth inequality, why shouldn't the European Union let in – as immigrants – many, many more non-Europeans? Won't that just limit wealth inequality almost overnight? Is that a good idea? I don't think you endorse it in your book, but that seems to me, by far, the easiest and most direct way to limit wealth inequality. Take in more non-European immigrants on a very large scale. Why not do that?

TP: You mean to reduce wealth inequality at the *world* level?

TC: Sure. There are poor people all over the world, including in former French colonies, and take many more into the EU.

TP: Yes, I am in favour of more migration and more open borders. Roughly speaking, I am in favour of more control of capital and capital flows and less control of labour flows – whereas today, we do the opposite. We have completely free capital flows and no fiscal coordination about corporate taxation or capital taxation, *and* we have strong restriction of labour flows. I think it's important to address the two issues together because, if you only open labour flows without changing the regulation of capital and wealth taxation, then you're going to reduce inequality in the sense that many people from the south might benefit, but you're going to increase inequality within the populations that today live in the north. And the big winners may be top people in the north, also top people in the south, but bottom people in the north will lose. I think if you want a fair solution, you need to do exactly what you say, but together with redistribution of wealth and income, not only in the north but also in the south. It seems that's perfectly complementary with what I am saying.

TC: Last question: what do you think of Michel Houellebecq and his book *Submission*?

TP: This is too nihilistic for me. He has some talent. He makes me think a lot of Céline. I don't know if you know Céline, but–

TC: Of course.

TP: Céline is a novelist of the interwar period in France who wrote this incredible novel, *Voyage au bout de la nuit*, where, basically, he tells us his experience during The First World War. And then, after the war, he goes to Africa. Then he goes to Detroit. Basically, he's completely desperate about the world. He's desperate about the war, of course. He's desperate about colonialism. He's desperate about capitalism in Detroit. He's completely nihilistic, but he has a lot of talent. I think Houellebecq is a nihilist. He has a lot of talent. I think in terms of political views, to me, he's just very nihilistic. I had the opportunity to debate with him and have a public discussion with him. He's too nihilistic for me.

I believe we can make the world better. The problem is with institutions, not with people. I think human beings are basically good, so to speak, and the institutions are not always at the level of the human beings – partly because it's difficult, of course, to set up the right institution. But we can learn from history. I'm trying, with my work, to contribute to this collective process of learning from history on how to build better institutions to have a better world.

TC: Thomas, thank you very much. Again, the new book is *A Brief History of Equality*.

TP: Thanks a lot, Tyler.

Conversations with Tyler

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The Art of Presidential Speechwriting

Where does public policy really come from?

PETER ROBINSON
SECRETS OF STATECRAFT

Interview by Andrew Roberts
Illustration by Vaughan Mossop

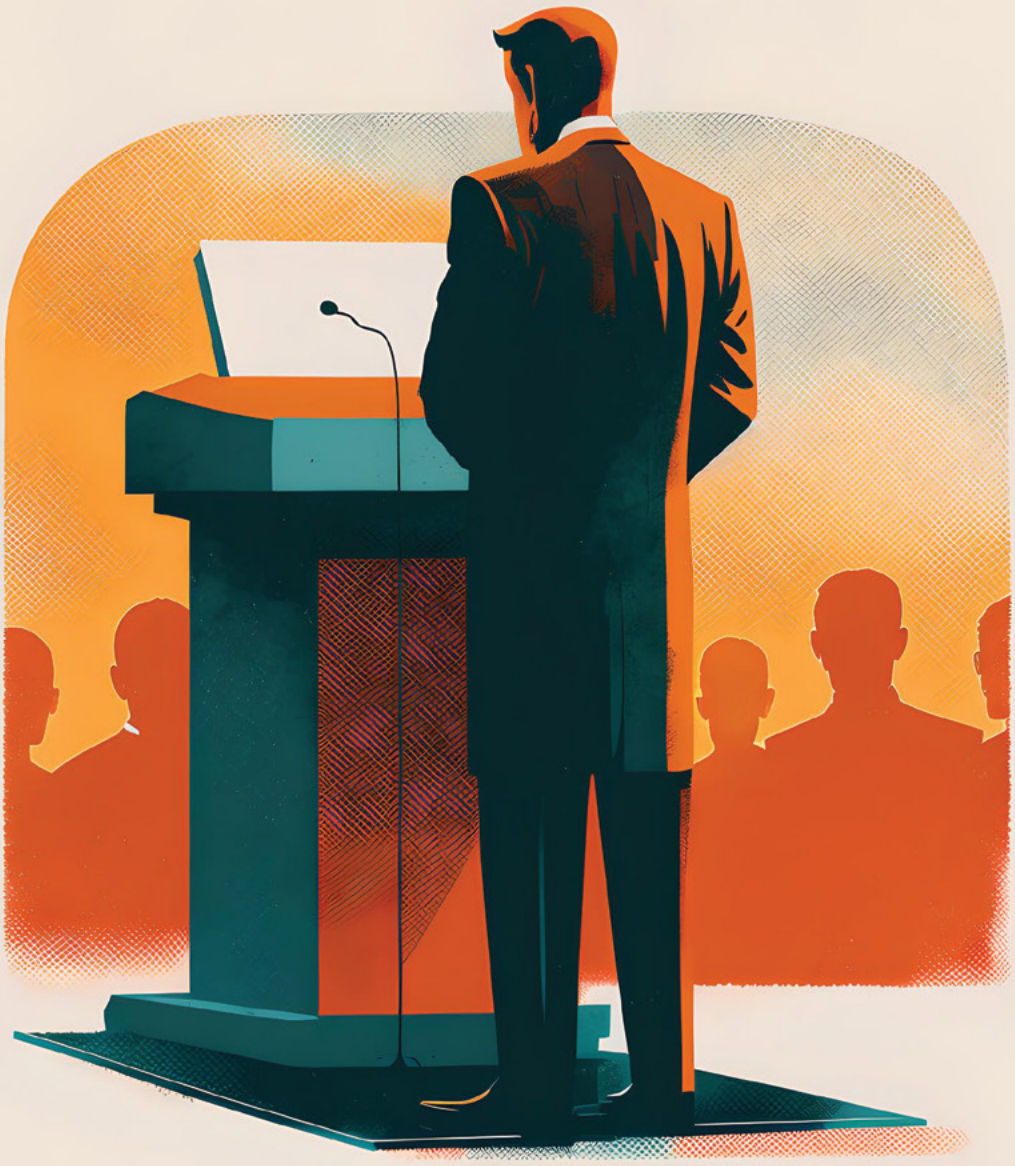
Andrew Roberts: Peter Robinson was a speechwriter for Ronald Reagan, and is the author of *How Ronald Reagan Changed My Life*. Peter's a Fellow of the Hoover Institution and the presenter of Uncommon Knowledge. He understands more than almost anyone else alive today about Ronald Reagan's secrets of statecraft. Peter, you say in your book, *How Ronald Reagan Changed My Life*, that speech writing is one-third research, one-third writing and one-third staffing. Please can you tell us a little about each of those stages in the process?

Peter Robinson: Sure. Speech writing varies from White House to White House, of course. I joined the staff of Vice President, as he was then, George H. W. Bush, before going to work for President Reagan. I was 25 years old. They hired me only because they needed somebody really fast. They were going to hire someone more senior to me eventually. As it happened, they never did because the Vice President and I hit it off. But in my first speech meeting with him, I walked in, sat down across the desk from him. As he would do – never when there was a woman present, he was a kind of old-fashioned gent – but as he would do when it was only men and it was just him and me, he leaned back in his chair and put his feet up on his desk and he said, okay, what have we got?

I said next week you're speaking to such and such a group, and the week after that the National Association of Manufacturers, and the week after that such and such. So, I sat there with my legal pad and my pen poised over it and he said, okay, the first National Association of Manufacturers. And I said, well, Sir, what would you like to say, and the Vice President looked at me and said, 'I don't know, what do you think?'

It never crossed my mind that he'd ask my advice. I thought I'd go in and take notes. Well, that was typical of him to be wry and humorous and gentle all at once. That was his way of saying, I'm busy, you're the speechwriter. You write the first draft. You take a shot not only at the first draft language, but at the first draft thinking.

Fast forward, this is what I learned of course, quickly. What's the group? Get in touch with the representatives of the group to which the Vice President or President would be speaking. Is there



Photograph: Nicolas Hippert

news that anybody wants to make here? Talk to some policy people.

I'll give you one example. It's 1984, we're getting ready for the President's re-election campaign. When he ran in 1980, the economy was the top issue, with double-digit inflation. By 1984 the poles indicated, partly because the Reagan economic programme had kicked in by then, that the economy falling was an issue. But one issue that was rising was education. I got assigned to write the big education speech for the President to deliver in Indianapolis. It was some sort of association of school principals. So, I telephoned a man called Terrel Bell, who was the Secretary of Education, and I couldn't get through to him. The assistant said, well, he's on vacation now but he'll draft something from the beach. So I waited a couple of days, and I got something semi-literate. Clearly he had just dictated it and it was mush. He talked about this programme, that programme, spending more here, spending less there. So I made an emergency telephone call to a man called Dick Darmon, who was then the Communications Director. Darmon was very busy and very curt. I described what had happened and he said, so you're telling me we don't have an education policy? And I thought for a moment, I said, well, yes, that's right. And then Dick Darmon said, then make one up, and he hung up on me.

AR: So, you were 25 years old, and you've been given the job of making up America's education policy.

PR: Yes, welcome to American politics, Andrew. By then I was 27-ish. So, I went into emergency mode. I called friends of mine who paid a little attention to education, and I discovered this man called William Bennett, who was then at the National Endowment for the Humanities. He and I had two or three lunches and working sessions and low and behold I did devise a six- or seven-point education policy.

Education did not actually play as dominant a role in that campaign as people thought for a moment or two it might. And thank goodness because in some

“He changed almost nothing on the Berlin Wall address, for example. And yet, these were all his speeches. That is the truer statement. That we wrote them, is incidental. That they were his is the true and important point.”

ways I had pulled together the education policy. But that was quite typical. It's not quite as wild as it sounds because there are staff who then look at the speech – we will come to staffing next. Then of course you write the darn thing and that takes a while.

AR: But how did you get into Ronald Reagan's speechifying techniques? Because if you're writing for somebody, you have to almost be them, don't you?

PR: Yes, you do. You have asked the question of questions. There is this terrible paradox, and I always get hung up on it when I'm trying to explain speech-writing in those days to anyone, because we speechwriters did write most of the speeches. The most I ever saw the President rewrite a speech was the Westminster address in 1982 to the Houses of Parliament. Which was a very important speech. There he rewrote – documents in the Reagan library show –about a third of that speech in his own hand.

AR: Were there some speeches that he didn't change a word of?

PR: He changed almost nothing on the Berlin Wall address, for example. And yet, these were all his speeches. That is the truer statement. That we wrote them, is incidental. That they were his is the true and important point. Now, how can this possibly be? One clue is that over the course of eight years, there were fourteen of us who held the role of speechwriter to the President. And yet, every Ronald Reagan speech sounds like Ronald Reagan. How can this possibly be? Well, we read the speeches he'd written before he became President. We looked at every piece of film we could. It was the rule in the Reagan White House that if you wrote the speech, you would go see the President deliver it. So, you'd go to the East Room, or you'd get in the motorcade and go to the hotel ballroom so you could see what he did with your material.

We studied this man, and it is furthermore very important, very important, that all of us agreed with him. I'm sometimes asked, could you write a speech for a Democrat? Is being a speechwriter like being a lawyer? Could you take on a defendant just to make the best case you could, whether you believed in it or not? That question never arose in the Reagan White House. Every single one of us was conservative. This in some way may be the most important point of all, although it sounds – I don't know, you tell me how this sounds – we all loved him.

AR: I think that sounds like an absolute prerequisite for the job, frankly. If you despised him or didn't like him, you would not have been able to have done such a job.

PR: Bill Safire, you remember William Safire?

AR: I do, yes. Great man.

PR: Bill founded a club for Presidential speechwriters during the eighties, and for a number of years we met. He gathered up all former Presidential speechwriters. When the club started, there were even two or three writers from the Truman years who were joining us. Clark Clifford came. George Elsey, who was a Truman aide, attended in the early days. We Reagan speechwriters quickly discovered a strange and totally unexpected (by me at least) affinity with another table of speechwriters and that was the Kennedy writers. The Kennedy writers, like the whole Democratic Party, had moved left since the administration of John Kennedy. None of them voted for Reagan. They all disagreed with him on policy. But here's what we had in common: the Kennedy writers and the Reagan writers both loved their president. John Kennedy was the biggest thing that had ever happened to Ted Sorenson and Ronald Reagan was the biggest thig that had ever happened to me. We really tried to inhabit Reagan's mind, in some way.

AR: And you read out his speeches in his voice?

PR: In his voice.

AR: Which is quite something.

PR: I'll draw one contrast. As I said I wrote for the

Vice President, George H. W. Bush, for about a year and a half before joining the President's staff. The Vice President was much more accessible, and he and I became quite good friends. I would say to his secretary I need to see him. No questions asked. I never had to wait more than one day to see the Vice President, talk things over with him face-to-face. Still in all, he was harder to write for than Reagan. Because with Reagan, you had that voice that was so distinctive, you knew what he sounded like. So you could read a speech and we all would... 'Ladies and Gentleman, good afternoon and welcome to the White House. Nancy and I ... .' So you'd read his speech and you could tell whether it would work for Reagan. George H. W. Bush was a wonderful man in all kinds of ways, but as a speech giver he didn't have a distinctive voice. You couldn't hear him in your mind's ear, so to speak, as you were writing. Reagan, you could.

AR: Tell us about the staffing third of the job. I found that absolutely fascinating in your book.

PR: Did you find it amazing? I found it infuriating.

AR: But it was fascinating how infuriating it must have been.

PR: The typical staffing process runs as follows. There were always five or six of us on staff. The chief speechwriter makes the assignments and the speechwriter gets the assignment. In the Reagan White House, one speechwriter would write one speech. The only exception to that was the State of the Union address, which we quilted together. I'd write education, somebody else would write another and it would get stitched together. But aside from that, the notion here was unity of voice. One writer to one speech. As distinct, for example, from George W. Bush's White House where, typically, three speechwriters would work on a piece all together in one room, trying out phrases on each other. I can't imagine working that way, but they did.

So, a speech gets written by a speechwriter, which then goes to the chief speechwriter. He marks it up. The speechwriter whines and says you can't change this – there's a little negotiation that takes place. And then it goes out to staffing. The staff secretary would decide: this speech goes to the Vice President. It touches on Foreign Affairs, so it goes to the Secretary of Defense and the Secretary of State. There would be at least half a dozen – and in some speeches more than that – officers or individuals. But the Secretary of Defense did not read his speech. The Secretary of State didn't read his speech. They'd hand it to staff and the staff would mark these things up. And then they would come back to us speechwriters. You'd spread these things across your desk, and, often enough, they would disagree with each other.

AR: This would be on policy, would it? The state would say this is going against State Department policy. Defense would say, this is not Defense policy?

PR: It was trickier than that, because we speechwriters, we were, A, anonymous and, B, really quite assertive. Now that I look back on it and I think how young I was and how little I knew. Now I'm old and I'm still ignorant, but then I was young and ignorant. So they'd say this isn't policy and we speechwriters would say, but we represent the President. Fundamentally what it came down to, was as a speechwriter you learned quickly who had to be listened to and whom you could ignore. It is in the nature of writing that one wants to make the argument tight and persuasive. So the speechwriters wanted vivid language, they wanted persuasive, tight arguments, and they wanted consistency of policy. Because that's the way writers think. But if you're Jim Baker and you're trying to get deals done on the Hill, sometimes you don't even want an argument made. Because you think you can stitch together a coalition. They'll all vote the same way, but for 25 different reasons. So, you don't want language. If you're the State Department – never, not once, did the State Department strengthen any language. Not once did it take something that was colourful and make it still more vivid. The bureaucratic tendency, always, without exception, was to water down, to turn wine into water.

AR: If we take as a case study, the famous, Mr Gorbachev, 'Tear down this wall', speech that you wrote. What happened to that speech between you writing it and Ronald Reagan delivering it in Berlin?

PR: There were two exceptions to the usual staffing process on that speech. One exception was that we all recognised it was a big speech. Not an historic speech, but it would be in the top ten speeches the President gave that year – UN Address, big speech, State of the Union address, big speech. Then we all recognised that, because of setting, the Berlin speech would number among the half a dozen big speeches of the year. By the way I was assigned that speech just because it was my turn to write the next big one. I'd written a lot of little stuff.

AR: Not because you were a foreign policy expert or because you were an expert on Germany, or communism, or the Cold War, or anything like that?

PR: No.

AR: It's the taxi rank principle...

PR: That's exactly correct. I went to West Berlin to

research the speech. I spoke to the ranking American diplomat on the ground, a man called John Kornbloom, who was full of ideas about what Ronald Reagan should not say. His main argument to me was, don't make him sound like an anti-communist cowboy and don't have him talk about the Wall, they've all gotten used to it. I went to the site where the President would speak. I flew over the wall in a U.S. army helicopter so I could see it from above – as you well know, from the air, the wall looked even worse than it did from inside West Berlin, because from the air, you could see what lay on the other side: the dog runs, guard towers, and so forth. Then in the evening I broke away from the American party and went and had a dinner in the home of some Berliners. We hadn't met but we had friends in common. They put together about 15 or so Berliners, so I could chat with people. I asked them about the Wall. They had stopped talking about it to each other every day, but if you asked them, it was clear they still hated it. They hadn't gotten used to it at all.

The hostess, a lovely woman, Ingaborg Els, said if this man Gorbachev is serious with this talk, glasnost, perestroika, he can prove it by coming here and getting rid of that wall. Okay, that goes in my notebook.

The second departure was, from the usual staffing, oh my goodness, I still feel sheepish describing this. This is now 1987. My boss Tony Dolan has been in the administration since Reagan took office in 1981, six years on. I myself have been in the White House for five years. We'd learned a thing or two. I went straight to Tony, and I told him the story I just told you. I said I think I want to build this speech around a call to tear down the wall. And Tony liked that immediately, but immediately began thinking, oh, we're going to need help. So there and then, we got up from his office and walked over to the West Wing and pitched this idea to Tommy Griscom, who was the Director of Communications and our boss. The point of this is that Tommy Griscom knew a good line when he heard one and he wanted press for the President. So he said, yes, okay. I write a bad draft in the first week and rewrite it in the second week. Tony Dolan, I later realised, was giving me cover for all this. In the State Department, John Kornbloom had produced a draft of his own and the State Department thought they'd somehow or other get their draft past us and have the President use that. Tony didn't let me know this was going on. Then, on a Friday afternoon, as the helicopter lands on the South Lawn to take the President to Camp David for the weekend, we send over a packet of speeches, including my draft of the Berlin Wall address, and say to the new staff secretary, the President has a lot of speeches to get through. There are quite a few speeches on this trip to Europe, why don't you give them to him now so he can look them over at Camp David so he can get a head start on it. And the new staff secretary was just that – he was new. He wasn't quite certain about the procedure. I wasn't there when this handoff occurred, but I'm told that he resisted a bit and said, wait, I think this should go to staffing first. And then the President walked in on his way to the helicopter.

We're in the Diplomatic Reception Room on the ground floor of the White House and the President looked and said, oh, well, what have you got for me. And the staff secretary handed him this batch of speeches. What I'm saying, Andrew, is that we speechwriters pulled a fast one to get the draft to Ronald Reagan before it went out to staffing. As far as I can recall, this happened on only three or four speeches in all eight years. But we did it.

So, we meet the President the following Monday. He's read the speech and singles out the passage in discussion, in front of staff, he singles out the passage about tearing down the wall as a passage he particularly wants to deliver. Then the speech goes out to staffing and it's three weeks from that moment in the Oval Office to the day the President delivers it. And for all three weeks, the National Security Council and the State Department fought the speech on a number of grounds. It was naïve. It would raise false expectations. It might put Gorbachev in a difficult position with regard to the right-wingers in the Politburo who would say to him, you see, you tried to do business with Ronald Reagan, and he just insults you in public.

Chief of Staff Howard Baker said he just didn't think it felt right. It sounded unpresidential. Years later I found myself in a conversation with him and he said, I've never been so glad about being totally wrong. And so, this goes back and forth and back and forth. My notes record that the State and the NSC submitted seven alternative drafts. Seven times they wrote a draft of their own on this, that or another pretext, but the passage to tear down the wall was missing from every one. A new draft would get submitted and Tommy Griscom would call me over and he'd – sitting right in front of me – have me look over their new draft and then ask, are there any concessions you can make here? And I would reply, no, I want to stick with the original draft. I was 29 when the speech was assigned and 30 when it was delivered. And speechwriting in the White House was the first full-time job I'd ever had. This is appalling in some way.

But I thought to myself, I was in Berlin, I saw the wall. It's horrible. I talked to people who have to live with it. That evening when I was talking to Berliners and I said, 'I'm told you've forgotten about the wall,' one man raised his arm and pointed and he said my sister lives just a few kilometres in that direction, but I haven't seen her in more than 20 years, how do you

think we feel about that wall? So I had encountered first-order reality, and the State Department and the National Security Council, these were people who made up their opinions by talking to each other and talking to West German diplomats.

Had this gone out to staffing first, it would have been smothered. It was critical that it went to the President first. Nobody really wanted to play the scene with Ronald Reagan in which they said, we know you're the nation's leading anti-communist, but we sort of think this is too much.

To finish the story, I was not part of the travelling party and I learned afterwards what happened from Deputy Chief of Staff Ken Duberstein, the fighting went on and on. Secretary of State George Schultz objected to the speech again in Italy which is where they stopped first and Duberstein thought he had no choice but to take it back to the President. Duberstein told me that he explained the State and NSC objections, then he had the President read the central passage, and they talked about it for a while. And then Reagan got that characteristic little twinkle in his eye, and he said, 'Now, I'm the President, aren't I?.' Yes, Sir, we're clear about that much. So, I get to decide whether that line stays in? Yes, Sir, it is your decision. Well, then, it stays in.

AR: Did George Schultz ever say to you that he was wrong, and you were right?

PR: Well, after the speech George Schultz made his way through the crowd to Tommy Griscom, and Tom said he'd never been so frightened in his life. He was about to receive a dressing down from the Secretary of State. George Schultz got to him and looked at him and said three words, 'you were right.' So the speech had this strange quality. There were serious people, professionals, to whom this seemed all wrong, right up until the moment they heard it, and then it seemed right.

AR: It's a key moment in the Cold War. There's something you have in the book which I thought was fascinating. Was it Tony Dolan who said to you that actors get used to alternative endings?

PR: Yes.

AR: Please go into that, because I think it's very interesting your theory of Ronald Reagan and the Cold War with regard to alternative endings.

PR: Tony's point was, that when Ronald Reagan went to Hollywood in the thirties, I've forgotten the numbers now, I believe it was in his first three years he appeared in seventeen movies. And the President himself used to say of Hollywood, they didn't want them good, they wanted them Thursday. In other words, in those days they were just making product. And it was quite typical for the actors on the sound stage to get ahead of the screenwriters. So, they'd finish a scene. There'd still be an hour left. Everybody's under contract, the lights are up, they're in their makeup, they're in their costumes, but they've just finished what the screenwriters have produced. And Reagan got a reputation for being quite good at ad libbing and trying out different scenes. So, they'd lay down a few scenes. They couldn't get too far ahead of the scriptwriters.

But they'd try things out and it always struck me as very odd, but even in the eighties, even with Ronald Reagan in the White House, there's a kind of a grimness about the conversative outlook. Whittaker Chambers writes in his book, Witness, that when he left the Communist Party, he did so in the consciousness that he was leaving the winning side to join the losing side.

Jean Francois Revel produces a book in 1984 which turns into a bestseller, and it's called How Democracies Perish. So, the whole underlying premise of Detente and coexistence of the Nixon-Kissinger-Ford policy, is that the Soviet Union is going to be here, essentially, forever. It's a great power. We have to deal with it. All we can to do is manage the relationship. This is just the way things are and they're going to continue to be that way.

That always struck me as very strange. Because nobody really could say when he woke up in the morning what would happen that day. Isn't that right? Isn't that the way human life is? We understand in our own lives the open-endedness of life. But somehow when people try to think through future history, so to speak, if they think forwards in history, they think in some strange way it's predetermined.

AR: And that's true especially with communism because essential to communism is this concept of the inevitability of the dictatorship of the proletariat. So, in a sense, even the conversative moment were buying into what is essentially a Marxist concept.

PR: That is exactly so. We had made an intellectual concession. It was a very serious concession without even realising what intellectual ground we had ceded. That's the way I read it now. And Ronald Reagan's mind just didn't work that way. So there's a famous moment told to me by Dick Allen, to whom it happened. The year is 1977. Reagan's now a former governor of California. He's run for the Republican Presidential nomination and lost to Gerald Ford. Ford in turn lost to Carter. So Reagan is, for all anybody knows, a washed-up politician. Carter's just been elected President. And Dick Allen – a foreign policy professional, who'd later become Reagan's first

> So the speech had this strange quality. There were serious people, professionals, to whom this seemed all wrong, right up until the moment they heard it, and then it seemed right.

National Security advisor – stops by Reagan's place in Pacific Palisades to give him an overview of world affairs. Mrs Reagan brings them sandwiches and, over lunch, the former governor asked, would you like to hear my view of the Cold War?. Dick Allen's said of course, Sir, I'd like to hear your view of the Cold War. And Reagan says, well, some people call me simplistic, but there's a difference between being simplistic and being simple. My view of the Cold War is, we win, and they lose.

AR: Magnificent.

PR: It is, isn't it? I mean, here they are over sandwiches and potato chips in Pacific Palisades. Dick Allen's made the point, he trained under Kissinger, that there was just no one in American politics who could have uttered such a statement except Ronald Reagan. I know you have recorded a podcast with this person, and he is in all kinds of ways, a genuinely great figure, Henry Kissinger. My impression of watching him, listening to him, reading his books, is that he has a mind, he knows immense amounts of history and he applies to that history, very close calculations. You look at the pictures of Kissinger and Nixon in the Oval Office and you can almost hear the tumblers turning in both of their minds as they make constant calculations of power, correlation of forces, and so forth. Reagan wasn't like that. Again, I'm not denigrating that turn of mind. Reagan had a different turn of mind. He had just a kind of moral imagination. He could actually picture a world without the Soviet Union at a time when no one else could do that.

AR: It was happening in England a bit with Margaret Thatcher in the late seventies as well. The interaction between those two intellectually, I think is something of great interest.

You say in your book that after Hinckley's assassination attempt that Reagan emerged a larger man. What did you mean by that?

PR: This is tricky territory, but in my judgement it's impossible to describe him in whole without getting into this territory. It's religious in nature. He says this to a few people, and he records it in his diary. I have heard from people who heard it themselves at second or third hand. By the way, Reagan's religion is very difficult to get at. He's not a man who wears his religion on his sleeve. He doesn't even go to church all that often. But I had long talks with, among others, Judge Bill Clarke, who did get to know Reagan extremely well and told me how often Reagan was in prayer.

The notion is simply this, that he felt, after the assassination attempt, that in some basic way, he had been spared for some higher purpose. Now, who else had a feeling, although he hadn't survived an assassination attempt – I might suggest to you the title of a recent book called *Walking with Destiny*. Is it not the case that Churchill felt..?

AR: In retrospect, the number of times that Winston Churchill escaped close brushes with death, the lack of an assassination attempt is almost an oversight. One suffragette did try to push him in front of an oncoming railway train so you might call that an assassination attempt. Yes, he also very much felt that the Almighty was saving him for a greater purpose, as a result of surviving all these close brushes with death. What you're saying is that Ronald Reagan had that too.

PR: Yes. What it meant was that from that moment on, you could sense it in him. From that moment on, all kinds of things that matter a great deal to most of us, just didn't matter to him anymore. They didn't matter. His reputation, this diplomatic manoeuvre, that diplomatic manoeuvre, somehow or other he was just firmly focused, firmly focused, that's not the right way to put it, but on the notion of freedom and liberty. Also – this doesn't get picked up on terribly much – he really hated nuclear weapons.

The notion that he was a warmonger? Like so many attacks on these great people, it is so often the

case that the press not only gets things wrong, but gets them exactly wrong. Not just a matter of nuance, but off by 180 degrees.

There's a meeting, this is not in the book oddly enough. I couldn't find a place to put it in. In any event, speechwriters in the Oval Office. The big issue in Washington at that moment was the Strategic Defense Initiative, so-called Star Wars and the question was, is Reagan serious about this? Or is this, as all the calculating minds supposed, a bargaining chip?

AR: Or a gigantic bluff.

PR: Exactly. Does he mean it or is it a bluff, or something to be dispensed with in bargaining? The President begins by telling us a story that we'd all heard before. That when he was in college, he got a job washing dishes in a sorority and the punchline was, it wasn't the worst job I've ever had, washing dishes in a girls' house. So, we chuckled but we'd all heard this joke before. And then he continued with something we'd never heard before. He said, one evening, he and another fellow, one of them was washing the dishes and the other was drying, and they were chatting, and the other fellow said, 'Well, airplanes mean that in the next war, we'll win it by just dropping bombs on the enemies' cities.' I can still picture this – he's describing a conversation that happened decades before, but you could still see the look of shock and bewilderment on his face – The President said, I told him no, no, we could never do that. We were Americans. That was all he said. But, of course, all of us were thinking, Hiroshima, Nagasaki, Dresden. At that moment, you knew...

AR: What year would that have taken place?

PR: He would have been 18, 19. He was born in 1911, so this would have been the early thirties.

AR: Before the Nazi's started bombing Rotterdam, before even Guernica was bombed, it was a very powerful moral concept, that it was a war crime to bomb innocent civilians in cities.

PR: True. All that is true. My point is that here he is repeating that concept in the 1980s, in the Oval Office. And at that moment, we understood the Strategic Defense Initiative was not a bargaining chip. He really wanted to use our technological advantage to discover a way to protect the American people from nuclear weapons. That was my point.

AR: In your book you put forward the idea that he had been lucky, especially in a couple of moments in politics. But then you say, his father was a drunk, his first wife divorced him, and when he was in his forties, his acting career was ending. Those are huge, all three of them, punches in the face to take.

> "... You look at the pictures of Kissinger and Nixon in the Oval Office and you can almost hear the tumblers turning in both of their minds as they make constant calculations of power, correlation of forces, and so forth."

PR: Yes, they are.

AR: And yet, later on, you depict a man with immense serenity. He's calm before the State of the Union. He didn't curse or mope or shout. He was a man of tremendous serenity. You've mentioned, of course, his religion, but where else does this come from, this serenity?

PR: How do we describe these things? Andrew, you and I labour under this burden that when in one way or another, we're situated in the world of academia and media, one is never meant to talk about really deep things, because they're just not allowed. It's just against the rules in some way. But it was his deep, deep faith.

But it was beyond faith. It was almost a kind of just knowledge that this was a man who had encountered reality, through suffering, and come to the conclusion that the whole Judeo-Christian basic message was true. Good is the primary reality. Evil is a distortion of that reality. History in one way or another, it is not for us to know in our time, but history in one way or the other, lies in the hands of a just and merciful Providence. And in some basic way, things are going to come out alright. Honestly, this had become just a fundamental part of his outlook.

AR: And you say also his happy marriage was something that gave him serenity as well. Tell us a little bit about that. Because she also, Nancy Reagan, has been horribly ill-treated by people, commentators, especially on the Left, over the years. So, tell us a bit about that.

PR: She was difficult for us, Andrew, even at the time. There was one moment, I think it lasted about three weeks, and since I was the junior speechwriter on the staff, I was told that I was now going to be writing speeches for Mrs Reagan. It took me about three weeks to wriggle out of that and persuade Mrs Reagan's staff that they needed to go hire a full-time speechwriter on their own. But in my files, I have a speech for Mrs Reagan in which Mrs Reagan, with a blue felt-tip pen, has drawn a line through every word on every page.

AR: The ultimate nightmare for a speechwriter.

PR: The ultimate. Every single word I wrote and that came back to me.

AR: Had that ever happened to you at all your entire career? You wrote 150 speeches in your first year as a speechwriter.

PR: Nothing like that ever happened. That was not just a rejection, it was a rejection in detail. She wanted me to know she'd considered every word and found it wanting. So, she was a difficult, tricky lady. But there's a moment in his life, a couple of people told me this using almost exactly the same words, which suggested to me they had heard it in those words from Ronald Reagan himself. But they both told me that the breakup of his first marriage was the worst event in his life, and that he told them that. They did not want to go on the record saying so, out of respect for him.

He starts dating one starlet after another. There's a moment for the first and only time in this life, where there's a kind of recklessness that enters in. He's showing up at nightclubs. His career as an actor is already beginning to fade. The way we thought about it in the White House was there were two people. Reagan was the older of the two, but Peter Lawford, this genial Englishman who married one of the Kennedy sisters and had a quick early rise in his career and then it stalled out and he got divorced. He was a lovely man known around Hollywood. He lived in Malibu, and he would throw parties and he would be constantly drunk and high. And he just threw away the second half of his life.

You could see Ronald Reagan moving in that direction for a moment or two, and then he meets Nancy. And she takes him in hand, and she gives herself to him. She's not a nobody. She's a starlet. She has some standing in town. Because her mother was an actress for many years, Nancy Reagan knew, really knew, Spencer Tracy. She knew major figures in Hollywood. So, this is not a nobody. And it just turns Ronald Reagan around.

In later years, I got to know Mrs Reagan better after the White House. In fact, we had this conversation once. I took her to lunch at the Hotel Bel-Air, where she had her own table and they knew without asking to bring her very finely chopped Cobb salad, of which she ate almost nothing. She ate like a bird. And we discussed, she wouldn't want this repeated, and I don't mean to make it sound as though it's denigrating anyone, but the difference between what she and Ronnie did in Washington and what George W. and Laura Bush were doing. She made the point that when she got to Washington, and she did in Washington just what she did in Hollywood. She looked around and said, 'Who do I need to charm to help my husband.' So she became very good friends with Katherine Graham. We speechwriters always disliked that Mrs Reagan was making friends with the liberal establishment. She was doing it because she knew how people operated. She knew how towns worked. She worked the town to help her husband.

Mrs Reagan is the one who's tough on staff. You had to prove to Mrs Reagan that you put his interests first. Her default position was, you're here to take something from us or to use him. Of course, for speechwriters, we laboured long hours for not much money in those days. She was always worried that we'd put something in that would embarrass him. But all she did was for the good of Ronald Reagan. And I realised, when you're President of the United States, everybody who walks through the door of the Oval Office wants something from you. We speechwriters wanted something. We wanted more of his time. Everybody wanted more of him. His children wanted more of his time and attention. And Nancy Reagan was the one who didn't want anything from him. She just wanted his own good. That was absolutely basic to him.

AR: There's also a lovely story of Michael Deaver putting you very much in your place as a young speechwriter. Why don't you tell our audience that?

PR: As I say, the general rule in the Reagan White House was that if you wrote the speech, you went to hear the President deliver it. I'd written a speech and it was to be delivered in Washington in some big hotel ballroom. The motorcade lines up. There's the armoured limousine drawn up on the South Lawn drive, just outside the Oval Office. We were waiting for the President. Then behind the limousine, there's a Secret Service vehicle, and there are six, seven

sedans. I was the lowest ranking member of the staff. I knew that without being told. So I walked to the last sedan and climbed into that. The other sedans all filled up with staff who outranked me, and I sat in the last sedan alone. I could see Deaver looking down the rank of sedans. We're waiting for the President and Deaver's gaze comes to rest on me. The lowly speechwriter.

First of all, all speechwriters were lowly in his view, and I was the most junior member of the speechwriting staff. So I see Deaver motion to an aide of his and point to my car and say something to the aide, and then the aide comes over and says, you're out of the motorcade. Mr Deaver doesn't want to devote an entire vehicle just to a speechwriter. You're out. I mean, the humiliation of getting out of my car and walking past all these staffers. I'm pretty sure that if one or two other staffers had joined that sedan, I would have been all right. But a speechwriter by himself? Burning taxpayers' money and gasoline, not a chance.

AR: I've got a couple of Reagan stories that I think might amuse you. Both of them told to me by Frank Johnson, of the *Daily Telegraph* who was a great friend of mine. A great journalist and a great friend.

PR: I took him to lunch once at the White House mess.

AR: Oh, well, you may have heard both of these jokes but some of our audience might not have. In 1976 Frank covered Reagan's run against Ford, and he had a chance to speak to Ronald Reagan, who asked him, 'Is it true that in California they're running all my old films?' Frank said, 'Yes, I love them. I've been watching them the last few days', whereupon Reagan replied, 'Those Democrats, they'll stop at nothing!' The other thing Reagan said to Frank was, 'My movies were never big in England. I put it down to your innate British good taste.' That's the kind of charming, self-deprecation you'd never get from a politician today, would you? It's just against the lexicon, essentially. He had that kind of self-deprecating humour.

PR: The humour was always self-deprecating. Reagan signed a piece of legislation. I don't think there was money involved but somehow or other it was a recognition that the internment of Japanese during the Second World War was a terrible error. So the audience is filled with old-time Japanese-Americans who'd been interned. I'd done my research and I'd discovered – manna from heaven for a speechwriter – that Reagan, at the time, as an actor in Hollywood, had spoken out against the internment. So, he's giving the speech and he quotes one Japanese-American figure and mispronounces the name horribly. He realises as he gets to the text. Now, we put these things in

> "when you're President of the United States, everybody who walks through the door of the Oval Office wants something from you."

phonetics. He almost always went over his speech in his mind before delivering it, but he just butchered the name. And then there was another quotation from another Japanese-American and he pauses and he's awkward on that name as well. And then he comes up to the quotation in which he's quoting himself and he said, 'And now a quotation from someone who was an actor in Hollywood at the time.' He reads the quotation and then he pauses and says, 'And I hope I can pronounce this name correctly, Ronald Reagan.' And it was a kind of apology and a moment of charm and humour all at the same time. You could just see the audience fall for him.

AR: What you call in your book, a certain lightness of touch. Which obviously is true both of Ronald Reagan and of speechwriting. Peter Robinson, thank you very much indeed, for this truly fascinating insight into the process of speechwriting for the person who I believe to be the greatest American peace-time President of the twentieth century.

PR: Thank you, Andrew.

Secrets of Statecraft

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On searching for black holes with pulsars

CHIARA MINGARELLI
MINDSCAPE

Interview by Sean Carroll
Illustration by Vaughan Mossop

Sean Carroll: Chiara Mingarelli is an astrophysicist, physicist/astronomer who thinks about black holes and how to detect them. The great thing is that the way that she specialises in detecting black holes is not one of the usual ways. Chiara is an expert in what are called pulsar timing arrays. And this is just a fun idea, it's one that you'd be rooting for to work out even if you didn't know anything about how sensitive and important it's going to be.

Pulsar timing arrays basically come from the fact that black holes – and other things, by the way – emit gravitational waves. So, what we're looking for is not the black holes directly, but gravitational waves emitted by black holes and maybe other gravitational waves from other sources. Black holes are probably doing black holes things, spiralling in, swallowing up matter. Those are the biggest sources of gravitational waves out there.

What happens is these gravitational waves pass by pulsars, which are very tiny neutron stars spinning rapidly, and these pulsars turned out to be really, really good clocks. They emit their beams of light in very, very regular pulses. So if you had a big, long gravitational wave that passes by all the pulsars in our galaxy that we're monitoring, it will slightly distort the timing of those signals that we get from the pulsars, and you can figure out what kind of gravitational wave it is. So basically, you're using a bunch of stars scattered through the galaxy as a gravitational wave detector, which is not only a surprisingly good way to detect gravitational waves; it's a completely different wavelength range than we can look at here on Earth. So it's a different kind of physics underlying what we will ultimately see. We don't actually have a claimed detection that we know for sure that the pulsars have seen gravitational waves, but we seem to be very, very close.

Unlike myself, who is a theoretical astrophysicist and likes to write down equations, most physicists out there are actually looking at data, collecting information. Chiara, by the way, is also a theoretical physicist, but she works in the team that is looking at data from pulsar timing. It's a sort of honest combination of theoretical work and good old observational work.

> “Very massive stars at the end of their lives will undergo a gravitational collapse. And the remnant will be either a neutron star or a black hole.”

Chiara Mingarelli, welcome to The Mindscape Podcast.

Chiara Mingarelli: Thank you, it's great to be here.

SC: How do you define black holes?

CM: When I think about black holes, I think about water coming out of a water fountain. And I think about the water going up and then falling back on itself. That a black hole is going to be some sort of ultra-compact object, although formally and mathematically, it's a singularity, this point of infinite curvature of space-time, whatever that means. In my mind's eye and in my heart, I feel like a black hole is actually a thing. It's probably a very small thing.

SC: Why is it a fountain?

CM: So it's like the light coming out of the black hole, whatever that is, like if you look inside the event horizon of the black hole, if you could imagine being inside on the other side, you would probably see light coming out and being processed around the singularity, like water coming out of a water fountain going up and then falling back down. The water itself can't ever escape. It's going to be like water going up and then coming back down and on itself.

SC: How has our thought about black holes empirically changed since you started thinking about these things professionally?

CM: They were considered very theoretical. There was sort of evidence from Cygnus X-1. There were x-rays that were coming out of this compact source. It could have been a black hole creating something, so getting material from a star around it and then that material getting hot and ionized gas coming off of it, emitting x-rays. Maybe that's what was going on, but it was still kind of fringe to talk about black holes.

And I feel like today, it's very concrete. We now have evidence of black holes merging. We have wave forms from ripples in the fabric space-time that they make, which is incredible. We have images of supermassive black holes, of two of them that have been directly imaged, which is amazing. So, I feel like black holes have gone from something that's very almost science fiction-y to something that's very hard science.

SC: Just to be clear, because I think a lot of us are a little too quick when we talk about imaging or observing black holes. We're never seeing light coming from the black hole, right? We're seeing light coming from things around it, and we're interpreting it.

CM: That's right. So, we normally see light coming from an accretion disc around the black hole, so a material that's kind of in an orbit around the black hole with it, and sometimes it feeds the black hole and sometimes it doesn't. But you're absolutely right that a lot of people get confused by the terminology and think that the light is coming out of the black hole. It is not. It's close to the black hole, but it is not coming out of it.

SC: Cygnus X-1 was the famous one, but we didn't know for sure that that was a black hole and people were properly cautious. It was weird because they weren't sure whether they could be made, and in fact, it's not that hard. I mean, nature wants to make black holes, is that safe to say?

CM: Yes. I think that nature makes black holes in lots of different ways. If we think about the history of black holes, I don't know what to call them in layman's terms, but think of them as weird singular points in Einstein's equation. They're the points where the equations can blow up. I understand why people were sceptical because, as scientists, sometimes we make a lot of approximations...

SC: There are different populations of black holes, right?

CM: Yes.

SC: So, there are ways that nature makes them, but there are different ways. We have again, a lot of recent

new data and discoveries, but before that, what was our expectation for what the populations of black holes would be like?

CM: That's a loaded question. I'll start with how nature makes black holes and how nature seems to want to make black holes. If we start with the very small end, potentially primordial black holes. There were, potentially, at the beginning of the universe, small fluctuations, and some of them could have been dense enough to create baby black holes. Those were never stars. There might not have ever even been any matter or baryons that went into creating those black holes, it's just a kind of blemish in the curvature of space-time. That kind of black hole is all curvature, which is so strange to think about, but it's entirely possible.

SC: By the way, we have zero evidence that that actually happened but it's something we can think about.

CM: Exactly.

SC: They could even maybe be the dark matter?

CM: Exactly. It could possibly be, because you could possibly get some of them that are as massive as the LIGO sources. The first detection from LIGO was to roughly thirty solar mass black holes. Some people think that those could be primordial black holes. Those could have come from the early universe, and maybe those are also dark matter. Maybe that's the missing matter in the universe. It's very unlikely that that's the answer. But it's curious.

SC: But it is hard to make the right number of them to be the dark matter, is my impression.

CM: Exactly. There are a lot of things that you would have to discount, like the lack of lensing events.

SC: Say more about that.

CM: If you have black holes, you can have light that's behind them that gets lensed when they're travelling on the way to Earth. And if you were to have so many black holes that they were the dark matter, they would create a lot of these lensing events. And there's no evidence for this at all. So I feel like it's being squeezed in a lot of different ways, that there's a lack of evidence and a lot of different fronts for these black holes to be the dark matter.

SC: So there still could be primordial black holes, but maybe not enough to be the dark matter.

CM: Yeah. Or maybe not enough that are in that mass range.

There are a lot of theories about different masses of black holes that you can make depending on the conditions that you had in the early universe and what you believe. But right now, the LIGO mass black holes, anything from like ten to a hundred solar masses, that's really hard right now to get those to explain dark matter.

SC: So how do you make them?

CM: They come from the collapse of stars. Very massive stars at the end of their lives will undergo a gravitational collapse. And the remnant will be either a neutron star or a black hole. So the neutron star is kind of a halfway phase. It's a halt that happens when you have the electrons and the protons that come together and make a neutron, but there's not enough pressure to make the neutrons to continue to collapse. There's a neutron degeneracy pressure.

SC: That's okay. You can use those words and we can assume people know what it means, but anyway, neutrons...

CM: Basically the neutrons, you need a lot of pressure to get them to continue collapsing into a black hole, to make whatever material is at the centre, whatever quantum description you have of that, whatever your equation of state of that fluid or material, or whatever quark-gluon plasma you think makes up the central object inside a black hole. It takes a lot of pressure to get the neutrons to turn into that kind of material. So some of them just stop there. They're about one and a half to two times the mass of the sun. But if you can keep going, then you create black holes. The cool thing is that from black holes that are one or ten or a hundred solar masses, they can merge, and the final mass is the sum of the two black holes minus 5 per cent for gravitational waves.

SC: So if the thing that is collapsing weighs roughly less than the sun, it'll be a white dwarf for a neutron star; if it's bigger enough, it'll make a black hole.

CM: That's it.

SC: So we expect to have a bunch of black holes that are more than one solar mass, and then if they merge, they can get up there.

CM: Exactly. But the fun thing, I think, is that there hasn't been enough time in the history of the universe to merge all the stellar mass black holes that are roughly the size of the mass of the sun to make a supermassive black hole.

SC: What are those?

CM: Supermassive black holes are around a hundred thousand to a million, and potentially up to 10 billion, times the mass of the sun. They are the biggest black holes in the universe. No one knows how those black holes were made. There's, of course, a bunch of different formation channels that you can imagine. One is that you had these huge gas clouds in the beginning of the universe that just directly collapsed into a black hole. But that's hard, because it means that none of that gas was heated. None of it fragmented to form stars, that it just kind of went 'schoop', and then created a supermassive black hole. That's kind of mind-boggling. But there's an intermediate theory where you have the gas cloud and then it collapses and it makes these huge stars that live fast and die young, and they make kind of intermediate mass black holes, so maybe 10,000 solar masses, a thousand solar masses, and those all quickly merge to make a supermassive black hole.

SC: How would we know? Is this something we're trying to discover with telescopes?

CM: I'm glad you asked that. Yes. One of the ways that we can find out what the – we call them seeds, supermassive black hole seeds – are is by looking at gravitational wave signatures from the early universe. Because if you have all these merging intermediate mass black holes that are building up to create a supermassive black hole, each merger will emit a gravitational wave signature. The laser interferometer space antenna, or LISA, is going to launch in 2034, It will be a huge LIGO-type instrument in space, that will be able to detect those kinds of gravitational waves.

SC: It's interesting how many things come together at once. We need to talk about the astronomy of making these things and the physics of detecting them, but maybe tell me just a little bit more about the nature of these supermassive black holes, because they're not rare, right? There are lots of them.

CM: There is at least one supermassive black hole in the centre of every massive galaxy. My own research is studying supermassive black hole mergers. So when galaxies merge, and we have lots of snapshots of merging galaxies, in fact, the James Webb Space Telescope (JWST) image that came out earlier this week had Stephan's Quintet, and it was breathtaking.

SC: Five galaxies.

CM: Five galaxies getting close, and two that were actually merging, so we know that galaxies merge. It's also how we think the universe works. There's this hierarchy, and galaxies get bigger by merging with other galaxies. If that's true, then central supermassive black holes should also merge, and those create the strongest gravitational waves in the universe. In fact, they're about a million times stronger than the ones that have already been detected at high frequencies.

SC: Maybe to explain this a little bit, we use the words 'supermassive black holes', and they're the centre of galaxies. I bet that in a lot of people's minds, the black holes are holding the galaxies together. But they're not.

CM: They are not. They are a significant fraction of the galaxy, around 1 per cent, of the mass of the galaxy. It's actually also an open question. How did the supermassive black holes get to the centres of galaxies? Was it that there was a galaxy that formed? A supermassive black hole formed somewhere else and they found each other in the early universe? Is that how they were seeded, we say, but they formed in situ? That seems really hard to do. So, that's another open problem.

SC: How big is a supermassive black hole? How many light years is the black hole at the centre of our own galaxy? Do you know?

CM: We have a fun trick. The relativist's unit is to use seconds for everything, which is light-seconds. So, one solar mass is 4.9 times 10 to the minus 6 seconds. That's how long it would take light to traverse the sun. And so, in the centre of our galaxy, we have something that's about four million solar masses, so it would take maybe 10 seconds at most for light to get across the centre.

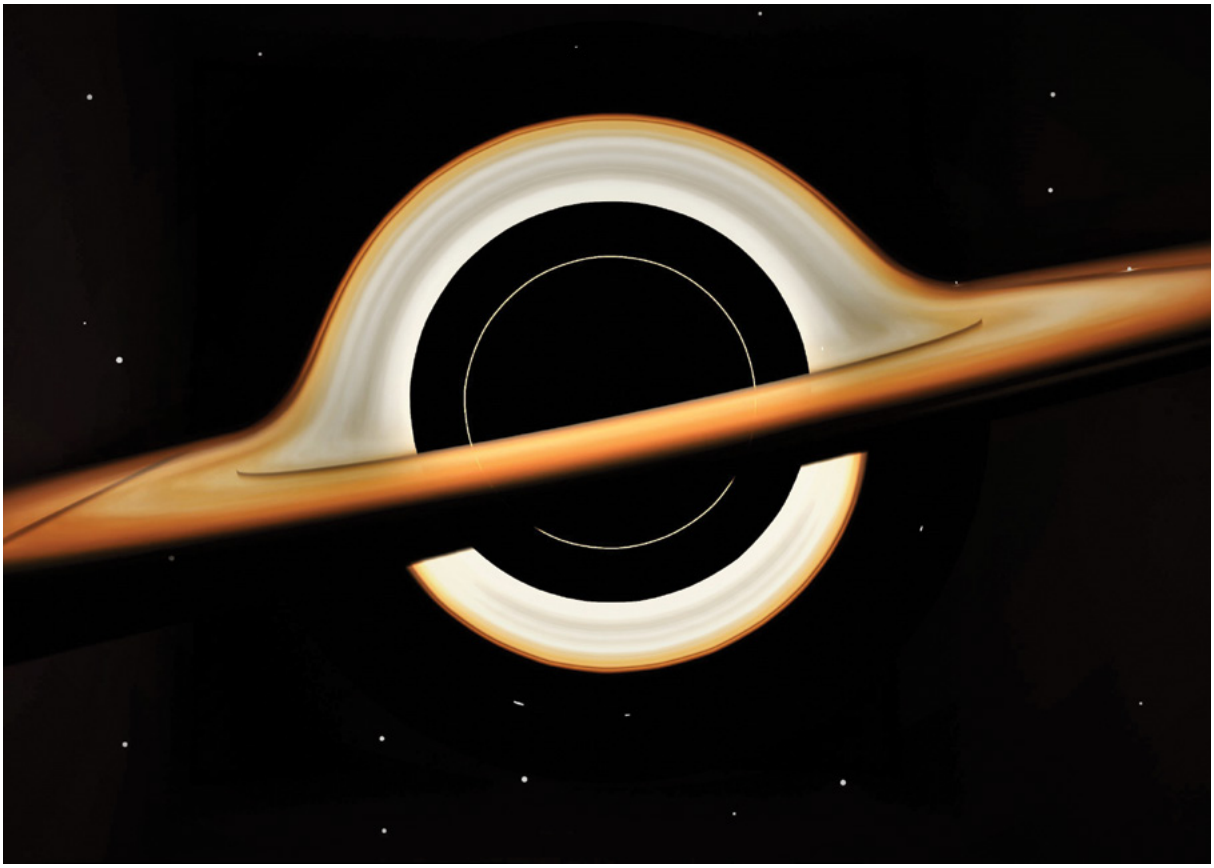
SC: 10 light-seconds?

CM: Exactly.

SC: That's tiny compared to the size of a galaxy. How do two supermassive black holes find each other when two galaxies merge? Why do black holes merge at all?

CM: That's a great question, and it's also an active area of research. There's very little known about the lives of supermassive black holes, mostly because it takes so long for anything to happen on cosmological timescales. I've done a few calculations which show that supermassive black holes will merge in something like two or three billion years.

That's a sizeable fraction of the age of the universe, which is about 13 to 14 billion years old. What happens, we think, is that your two galaxies interact



Photograph: Aman Pal

gravitationally, their galaxies start to merge, and then it takes a while, but the black holes are eventually slowed down in the merger process by interacting gravitationally with gas and stars. The technical term for this is dynamical friction.

The black holes will then settle in the gravitational centre of this newly formed galaxy, but unless they're interacted upon by other forces, they can stay there forever, basically in a stable orbit. It'll take many times the age of the universe for these supermassive black holes to merge by only emitting gravitational waves. So, they can get to within about a light year separation, but they will not merge unless something else acts on them.

SC: Let me just repeat it to see if I got it right. It's easy to see why black holes would sort of sink towards the neighbourhood of the centre, because there's friction. But because they are so tiny, astrophysically speaking, they have to get really close, and we don't know how they do that?

CM: Well, we have a few ideas on how they do that. This is called the final parsec problem. The solution to this merger problem is that you realise that the black holes are not alone. That there is gas and there are still stars. If you have some stars that are crossing the orbit of the supermassive black hole pair, every time a star interacts with those two black holes, it'll carry away some energy in angular momentum. So, every time a star gets slingshot out and interacts with the black holes' orbit in that way, you get a little bit less mass, and so energy, that's in the system, and it slingshots it out. If you have this happen enough times, then you can get the black holes close enough such that they merge within the age of the universe. You can also have a gas disc that develops around the two black holes, and the gas can torque the black holes and make them merge, in that sense. In nature, it's probably a combination of the two.

CM: To add a fun breaking news headline to this, some theorists have found in large hydrodynamical simulations that the gas discs can apply positive torques, which means that the black holes get further away from each other, instead of negative torques, which make them merge. Apparently, it really depends on the properties of the gas disc around them. So, we think that for realistic discs, they probably merge, but you can make them not merge in a super computer. So it's all of these different competing effects. But if you can get the black holes to within a thousandth of a light year, then they do merge by knitting gravitational waves quite rapidly. So, 25 million years with respect to the 2 billion years that it took them to get to the centre of the galaxy. So really, the last part

is just noise.

SC: This is really fun because it is a glimpse into the frontier of astrophysics. We know these supermassive black holes are there, we don't know exactly why, but we're also not just stuck speculating. We have some combinations of simulations and telescope measurements that will help us figure this out.

CM: That's right. And if we find gravitational waves from supermassive black holes, then we know for sure that they've overcome this final parsec problem. Then the question becomes, 'Well, how did they do that?'

SC: In some sense, they did overcome the problem, because they exist, right? The supermassive black holes exist. But we don't know whether they were made directly or they were assembled gradually. And in all of these things, gravitational waves will help us sort it out.

CM: Even today, if you had a merging pair of supermassive black holes, you'd know that they had to overcome this final parsec problem that comes from galaxy mergers.

SC: Got it.

CM: The first gravitation wave story was about the formation of supermassive black holes. The second story is now, it's much later in the history of the universe, there are black holes in the centres of galaxies, the galaxies are merging, what do the supermassive black holes do?

SC: It's an interesting reminder that the universe is still kind of young, it's still evolving. When that picture came out of Stephan's Quintet, its five galaxies interacting with each other…probably, people see pictures of galaxies and figure that it's more or less a steady state kind of configuration, but it's really not. These galaxies are moving and bumping into each other and tearing each other apart.

CM: Absolutely. And the black holes are merging, hopefully there are stars being slingshot around, there's gas being funnelled to the centre. Everything is very dynamic. But the timescale is not a human timescale. And so we see it as being static, basically.

But if you just hit fast forward, you'll see really beautiful physics happening. And that's some of the power of these super-computer simulations, that you can speed up mergers and try to get snapshots of galaxies that you see today in different parts of the merger process

"Everything is very dynamic. But the timescale is not a human timescale. And so we see it as being static, basically."

SC: So, you're using pictures of different galaxies at different stages of their life as a proxy for the trajectory or history of a single thing?

CM: Exactly. Because that's all that we've got, right?

SC: Yes, we're not going to wait around for a billion years to watch what happens. So we kind of knew, or we had strong feelings, that these supermassive black holes existed long before any of this gravitational wave stuff came along? I presume that's because we knew that there were quasars and things like that, and we're just trying to explain that?

CM: That's part of the picture, absolutely. But there's also the centre of the Milky Way. Andrea Ghez and her group at UCLA have famously measured the mass of the black hole at the centre of the Milky Way, the Sagittarius A star which was recently imaged with the Event Horizon Telescope. So by watching stars orbit around this central compact object, they can figure out what the mass was just by doing some very simple Kepler's laws calculations. So if you know the mass of the star, and then you know roughly what its orbit is, and you can watch several orbital periods, you can get a really good handle on what the mass of the central object it's orbiting is.

SC: And we don't see a lot of photons coming from the centre of our galaxy? It's a pretty quiet black hole?

CM: Right now, it's a pretty quiet black hole. There is evidence, though, at one point in its history, it had some jets. There's some gas that people have been able to see, which would indicate that at one point, there were jets coming from Sagittarius A star, but this is very speculative. We can only say this is consistent with the existence of jets at some point in the past, but you can't rewind the universe to check.

SC: But we do see that distant galaxies are often very bright, that's what a quasar is, right? It's a tiny speck in space that is giving off way too much light, and eventually we realised it was sort of a jet beam being beamed right towards us from a black hole.

CM: That's right, from a supermassive black hole.

SC: And those were all over the place in the earlier universe, and now we're entering our adulthood and we don't have as many quasars?

CM: That's right, yeah.

SC: The universe is changing a little bit, and so, it's at least a consistent story that our galaxy used to have a quasar, is it not?

CM: Yes, that's right. And also, if you think about it, in the early universe, there was a lot more gas. And today, there are a lot more stars. That gas has become stars. So if you want to go back to the final parsec problem, it's possible that earlier on in the universe, it was solved through gas interactions, through these torques, and that today, for nearby merging supermassive black holes, it's mainly stars.

SC: What about the dark matter? You're a grown-up astronomer, you know there's more dark matter in the universe than there is ordinary matter. Does that play any role in making black holes, or is it just irrelevant?

CM: It's a tough question. There are different kinds of dark matter. One kind of dark matter that I think is very popular right now, – because just like everything, there are different fashions and trends in theoretical physics and astronomy – is something called superradiance.

What happens is that there are these particles which are created around the supermassive black holes, and the creation of this particular kind of dark matter-like particle, this axion, spins down the supermassive black hole. So if you watch one long enough, you could actually see it spin down.

SC: Let's be kind to our audience and explain a little bit about gravitational waves. We've been using the terminology. Could you please explain what a gravitational wave is?

CM: Gravitational waves are ripples in the fabric of space-time that travel at the speed of light, and gravitational waves change the distances between objects. So, you and I are sitting at opposite ends of the room, for example. We would still be sitting in place, but we would get closer together and then further away, and then closer together, and then further away, without actually moving, because it's the space-time between us that's changing. And so with LIGO, the LIGO gravitational wave detector can detect gravitational waves that are at hundreds of Hertz.

SC: Hertz per second?

CM: Yes. It makes sense to think about the change in distance over distance when you're thinking about those kinds of gravitational waves. That's really how we think about the strength of a gravitational wave. The technical term is the strain', but it's just how strong that gravitation wave is. How much does it distort the fabric of space-time? You can think about a change in distance over distance, and for LIGO, this is the fraction of a size of a proton over a few miles.

SC: Let me just make sure we understand this. The point is that there's a uniform stretching of space, almost uniform, but what that means is the further away a laser moves before it bounces back, the more the distortion of space is. And the invariant thing is the distortion divided by the distance…

CM: Exactly.

SC: So that's distance divided by distance, that's what you mean by that.

CM: Exactly. So it's the change in distance over distance, is the strain, and that is something like the fraction of the size of a proton that the gravitational wave changed over a few miles. Which is crazy small.

SC: And so LIGO is the famous experiment that won a Nobel Prize.

CM: That's right. Thinking about distance changes makes a lot of sense for LIGO, but there are other gravitational wave detectors. The one that I work on is called a pulsar timing array, but it's the same idea. You look for these space-time distortions. But with a pulsar timing array, what you do is that you look at a series of pulsars. A pulsar is a neutron star that we talked about earlier, but now its spin axis is misaligned with its magnetic field line. So, every time it spins around, it sends a flash of radio waves to the Earth, like a light house. You get really stable flashes, so we know exactly when those flashes should arrive.

SC: So, the stability means it's a good clock.

CM: It's an almost perfect clock. Before 2012, they were better than atomic clocks.

For the experts, it's a millisecond pulsar, but if you're not an expert, pulsar is fine.

SC: So is millisecond a short period of time for a pulsar, or a long period?

CM: It's very short. It means that it spins around about a hundred times a second. And just to blow your mind a little bit more, these millisecond pulsars are about one and a half times the mass of the sun, and they spin around a hundred times a second, and they would fit into the island of Manhattan. That's how small they are.

SC: I like it because whenever we say they're very small, compared to what? They're much smaller than the Earth, but they're more massive than the sun. But the fact that they spin around a hundred times a second is impressive. And they don't fly apart, because gravity is so strong.

CM: That's right.

SC: How many of these do we know about?

CM: There are thousands of pulsars that we know of. There are potentially tens of thousands of them in the Milky Way galaxy alone. Currently, there are only about a hundred of these pulsars that are good enough clocks to look for gravitational waves. But I haven't yet told you how we use them as gravitational wave detectors.

SC: Please.

CM: Thank you. So, the pulsars are perfect clocks, basically, for all intents and purposes. So you measure the time of arrival of the pulse at the Earth, you know when it should arrive, you've measured when they do arrive, and any change in when the pulse arrives with respect to when it should arrive could indicate the fact that that pulsar is now sitting the other side of the room and it got a little bit further away from me, and then it gets a little bit closer, so the pulsar time arrivals will change a little bit. They could arrive early, and then they can arrive late. And so, now when we're thinking about the strain again, if you're thinking about a change in distance over distance, LIGO-style, this is something like 10 metres per light year, but as humans, it doesn't really mean a lot. So, in my opinion it's more intuitive to think about a change in time over time, and that is something like 100 nanoseconds over a decade.

SC: So, a tiny amount.

CM: Exactly. A tiny amount, but that change is still a million times stronger than the change that a stellar mass black hole merger will give you in the LIGO detectors.

SC: So the idea is that there are all these different ways of detecting gravitational waves, but just like a telescope, that there are optical telescopes, infrared telescopes, x-ray telescopes, different wavelengths they're looking at. Likewise, the gravitational wave telescopes are only sensitive to certain wavelengths.

CM: That's right, yes. And LIGO is sensitive to tens to hundreds of Hertz.

SC: What's relevant is the frequency in Hertz. So, tens to hundreds of cycles per second.

CM: That's right.

SC: Whereas your pulsar timing arrays..?

CM: Are sensitive to 1 to 100 nanohertz.

SC: And a nano is?

CM: 1 nanohertz is about 30 years. One over 30 years. It would take 30 years for one full wave cycle to go by.

SC: And that roughly corresponds to the fact that we're looking to pulsars gathered throughout the galaxy that are light years away from us?

CM: Exactly. There's no other way to detect – that we know of right now – these very low-frequency gravitational waves, for a few reasons. Mainly, these gravitational waves that are coming from supermassive black holes are very low frequency or have these very long wavelengths, so something on Earth can never detect a gravitational wave that has a period of decades. You just can't do it.

SC: So, the LIGO detectors look at these inspiraling black holes over tens of solar masses?

CM: That's right.

SC: That's just what they're sensitive to. There could be black holes out there that are single solar masses that are inspiraling or thousands of solar masses that are inspiraling, and LIGO just wouldn't know.

CM: Earlier on we talked a little bit about the LISA detector when we were talking about supermassive black hole seeds, but in fact, LISA is now sensitive to the millihertz frequency regime, which is right in between LIGO and pulsar timing arrays so they would be able to detect these thousand solar mass

black hole mergers. But again, LIGO will not be able to detect that, and neither will pulsar timing arrays.

SC: But LISA is scheduled to be launched in, you said, 2034. But it's not really going to happen in 2034, because no satellite's ever launched the year they plan to launch.

CM: It's interesting that you should say that. Normally, I would strongly agree with you, but there are some reasons that we might want to launch LISA earlier. Number one is that LISA's pathfinder mission performed extraordinarily, surpassed all expectations. It was an amazing flight, so the technology is ready to go. There's an x-ray telescope called Athena, which is supposed to be launched in 2028 and this x-ray telescope would be the perfect instrument to try to follow up on supermassive black hole mergers that LISA could see. So if they were to launch at roughly the same time, at the very least, be alive in space at the same time, you would have a huge science case for looking at these electromagnetic or light signals from merging supermassive black holes. And there might not be another opportunity to do this in the near future.

SC: Got it.

CM: So there's a strong case that's being made right now to move up the LISA launch date so that it can coincide with Athena.

SC: And LISA is the set of, basically, lasers in space bouncing back and forth?

CM: Lasers in space. Exactly. It's called a constellation because there are three different points, and it makes a triangle. What's cool about this is that in this triangle, you can make two independent LIGO-like detectors. You can take your equilateral triangle and make two independent right-angle interferometers from it. That means that as your triangular configuration is circling the Earth and floating around, it can detect the polarisation of your gravitational wave.

SC: So, we need to separate out what has been done from what we're hoping to do.

CM: LIGO has detected things, unequivocally. LISA has not detected anything yet, because it hasn't flown yet.

SC: Speaking of predictions of general relativity, you have said that gravitational waves move at the speed of light. How do we know that? Do we know that?

CM: There's only recently been verification of this prediction, that gravity travels at the speed of light, by a binary neutron star merger that was seen.

SC: So not a black hole.

CM: It was not a black hole; it was two neutron stars that were merging with each other. And we saw the light and the gravitational wave signal from that system, and the light arrived two times into the minus 15 seconds after the gravitational wave signal, so that's two parts in a million billion…

SC: Almost at the same time. So, when the black holes merge, we don't see anything with electromagnetic waves?

CM: Of course, everyone has a theory where you could possibly see something, but in very straight general relativity there's no expectation of seeing an electromagnetic counterpart. In fact, one of the things when I first started studying gravitational waves that really blew my mind, is that gravitational waves, it's another spectrum. It has nothing to do with light. People also call it 'gravitational radiation.' That's another word that's used synonymously, that took me a long time to understand as well, that gravitational radiation is gravitational waves. It's much easier to think about electromagnetic radiation and gravitational radiation. They each have their own spectrum, but they're different. They're intrinsically different.

You can have one source, like a light bulb, but that's emitting multiple frequencies, multiple different wavelengths. You can look at it with an infrared camera, you can look at it with your eyes. But with a gravitational wave source, it's really going to be restricted to its own part of the gravitational wave spectrum. You're not going to have two merging black holes of any mass that are going to give you simultaneously different gravitational wave signals. It's just a continuous way of generating these gravitational wave signals.

SC: And in part that's just because gravity is a much dumber force than electromagnetism. There are not positive and negative gravitational charges; it's just lumps of matter and energy, and they're doing something at a certain frequency, and that's where they're going to radiate. Nothing complicated about it.

CM: Exactly, yes

SC: For the neutron star-neutron star mergers, how many of those have we found?

CM: Just one.

Photograph: lamnatheshark

SC: But there, you get both gravitational waves and an explosion that is very visible in light.

CM: Yes, that's right.

SC: That's why we can tell that the speed of them coming to us is the same.

CM: That's right, and we've been able to monitor the remnant afterwards to see how the light is evolving, to see what materials were produced when the two neutron stars merged. In fact, I think it was on the front page of the *Wall Street Journal* because it would have created vast amounts of gold and platinum if you could get to it.

SC: So general relativity, once again, in pretty good shape.

CM: Yes. It's in very good shape.

SC: We now understand that LISA is going to happen in the future. What is the main target for LISA going to be?

CM: LISA will look at intermediate mass black holes and supermassive black hole mergers. It will also look at things called extreme mass ratio inspirals or EMRIs. And that means that the ratio of the two masses will be something like a thousand or 10,000 to one...

SC: So, a tiny black hole falling to a big black hole?

CM: Exactly. Those create really interesting gravitational wave signatures. So it can look at those, it can look at intermediate mass black holes, and it can look at supermassive black hole mergers. So, the point of LISA? Depends on who you ask.

People like me who studied supermassive black holes say, clearly, we want to look for the baby supermassive black holes, the ones that are a million times the mass of the sun. Because the billion solar mass, ones you find with pulsar timing arrays.

SC: So, their frequencies are too low to be in LISA's band?

CM: Yeah. Not only that, but they don't exist. Because there's another thing that we haven't spoken about yet. There's something called the innermost stable circular orbit of a black hole binary system. And well, of any black hole really, but the same thing holds true for black hole binary systems. That's just the last stable orbit that any kind of body can orbit around. So, if you have two merging billion solar mass black holes, and say they're roughly the same mass, they will merge at a millionth of a Hertz, at 10 to the minus six Hertz. So what that means is that it merges in the space in between pulsar timing and LISA. So those black holes will never make it to the LISA band. They merge first. So you're right in between experiments.

SC: I'm actually a big fan of the tiny black holes falling into the supermassive ones, because that lets you map out the space-time metric around the big black hole, and that will really test general relativity. I'm a big fan of LISA, for exactly that reason. I think that it almost went away. I was on a NASA panel that really pushed for LISA, but it was decided that it was a little speculative. And that it wasn't until LIGO found gravitational waves, then we said, 'Oh, wait, we've got do this now.'

CM: Well, there's also the elephant in the room. That's the James Webb Space Telescope that took all the money. Maybe it's not polite to talk about that now.

SC: There is a finite amount of money, but it's not a fixed amount of money. I mean, Congress can decide to pay for two things. Generally, when they cancel one big science project, they don't give the savings to other science projects. It's true that there are priorities, we needed to decide what to do. But I think that scientists often think that their project is fighting against other science projects, when it's really usually not the case.

CM: You're right. In that sense, it's not a zero-sum game.

SC: We could always get more money. And the case of LISA, I think that we owe a huge debt of gratitude to the European Space Agency, which took on the…

CM: Entire project and kept it alive. And after the LIGO detection, as you mentioned, NASA has now rejoined as a junior partner.

SC: But right here and now, we have LIGO that has already won a Nobel Prize. LISA is in the pipeline. And we have your pulsar timing arrays, which is going right now. Right?

CM: Not only is it going right now, but my colleagues have been timing these millisecond pulsars for decades.

SC: Okay.

CM: So some of the pulsar timing baseline span almost 30 years. And NANOGrav, which is the North American Nanohertz Observatory for Gravitational Waves, has been operating for the last 15 years, timing these millisecond pulsars in a very strategic way to detect gravitational waves. So as a gravitational wave detector, pulsar timing arrays are also really unique. We talked about how one pulsar will have an advance or a delay in its arrival time, but the galaxy is full of pulsars. Right? And so, by using pulsars in this way, you're turning the whole galaxy into a gravitational wave detector, which is really kind of mind-blowing.

But that is exactly what we're doing. And so, if you were to see this advance or delay just in one pulsar, you can't really conclude anything, because your pulsars are thousands of light years away, and there's gas in the galaxy, there's dust.

Wavelengths are affected in different ways by these processes. You can have things that scatter. So you have to look for the signal not only in one pulsar but a whole array of pulsars. And so right now, there's about hundred of them that are timed by the International Pulsar Timing Array. So not only NANOGrav, but also the European Pulsar Timing Array, the Parkes Pulsar Timing Array, and the new Indian Pulsar Timing Array. We're collaborating and we're trying to create a new dataset which joins together all of our data for these pulsars.

SC: And the good news is, this is my naivete as a theorist showing through, but you don't need to build anything to do this. You just use existing telescopes?

CM: Yes, I think that's been a blessing and a curse for pulsar timing arrays, because it's such an ingenious idea which actually had its inception in the early days of space travel. Sasin wrote this paper in 1979 describing how you could use the Doppler shifting of signals from potential probes leaving the solar system to look for gravitational waves.

It's so clever that you can use spacecraft and time delays from spacecraft. But then he was very disappointed that you don't really have the timing precision that would enable that kind of detection. And then there's a serendipity that happened with pulsar timing as well, that in 1982, the very first millisecond pulsar was discovered. And in 1983, there was this paper that came out that said, if only we had pulsars that were good enough, we could create a pulsar timing array. But unfortunately none of the pulsars are precise enough, none of them have this kind of 100-nanosecond timing stability over a decade. And there's a little footnote in the bottom of that paper saying like, actually, maybe it's possible. But back to your comment about this being a cheap experiment, I think it has been a blessing and a curse. The idea is beautiful. I think it's a fantastic idea. It's my favourite. It still thrills me to this day to think that one of us very clever apes thought about doing that. It's also a curse in the sense that it is very cheap, and I think that that makes people take it less seriously. I think that if the National Science Foundation had invested billions of dollars in this experiment over the last few decades, that it would have a much higher profile than it does right now. Of course, that kind of investment also enables lots of public outreach and a huge machine behind the experiment. But in fact, in

the last few years, the National Science Foundation has invested heavily in NANOGrav. We received a Physics Frontier Center Award for $15 million about six or seven years ago, it was the first one, and it was just renewed two years ago for $17 million. This is the biggest investment in pulsar timing arrays directly on the planet. So we are very grateful for this money to enable the experiment and to pay for students and post-docs and researchers and telescope time.

SC: But LIGO was a billion dollars.

CM: LIGO was at least a billion dollars. I think that there's this kind of interesting psychology that happens when you have an investment that's that big and something.

SC: And there was at least a chance 10 years ago that you would have found gravitation waves before LIGO.

CM: Oh, it was a neck and neck contest.

When I was a post-doc at Caltech. At the same time, there was a signal in the NANOGrav 11-year data that looked a hell of a lot like a gravitational wave background signal. I haven't told you yet what a gravitational wave background is, but if we just go with the fact that there was a signal in the data, and it was basically a race against when does LIGO see the first binary black hole merger and when do pulsar timing arrays or NANOGravs see this random gravitational wave background? No one knew what the answer was, because no one knew what nature did. No one knows how many merging supermassive black holes there are, what the amplitude of the background is, and no one knows what the merger rates are for real of binary black holes. Before the first LIGO detection, this varied by orders of magnitude. Every year, you would get new papers that had different wild estimates. So people just kind of throw their hands up in the air and they're like, the merger rate is whatever you think it is. Who knows?

SC: Then it ended up LIGO was pretty lucky with a bunch of black hole mergers.

CM: LIGO got really lucky with the first detection, because it was screaming loud. I did some of my PhD work on LIGO, and I know for a fact that people have been working for many, many years on creating very sensitive data analysis pipelines to tease out the hint of a gravitational wave signal and have very sophisticated Bayesian analysis techniques to look for this signal. And the first one was so loud, you could see it by eye. And no one would believe it. They were like, did someone shake the mirror? And it was just a screaming loud gravitational wave signal. So, at that time, there was also a signal in the NANOGrav

> "
> ... by using pulsars in this way, you're turning the whole galaxy into a gravitational wave detector, which is really kind of mind-blowing.
> "

11-year data.

SC: This is the pulsar timing array.

CM: This is the pulsar timing array. We thought we may scoop LIGO, which would be fun in the sense that our little experiment, that had very limited funding, was now competing... it was like a David and Goliath kind of situation.

Then LIGO starts kind of slinging mud, in a collegial way, saying, 'It's not a direct detection. You're not making anything that's direct. We have a waveform,' and we're like, 'That's not super true. We're looking at the change in times of pulsars, and you're looking at the change in distance and signals, and we know that general relativity is right, so it's the same thing. You do not have a more direct detector.' Anyhow, there was a lot of weird backroom conversations, but in the end, this 11-year signal was likely due to solar system ephemeris errors, because 11 years is roughly the period of Jupiter.

SC: Because it's gravitational waves, you care about your location in the solar system.

CM: You do care about your location in the solar system, and that's because if you think about how you're timing pulsars, the Earth is moving throughout the solar system throughout the year, the pulsars are moving on the sky, so you want to take your time of arrival stamps for your pulsars and transform them to the solar system barycenter. The barycenter's where you can balance the solar system on the tip of your finger. That's the point you want all of your time of rivals or your TOAs to be at that point. You can trust everything at that point. If there's a mistake in how you calculate that point, what happens is that your pulsar arrival times will circulate the orbit, the true barycenter, and create the signal that's present in

all of your pulsars, but it won't have the gravitational wave shape to it that we expect, which is a quadruple. It'll have a dipole signature, but not the quadruple.

SC: That's good. This is sort of a check that you haven't messed up.

CM: Yes, unless there is so much dipole signal that it leaks into the quadruple in your data analysis, and that's actually what we found. We found that there was some sort of error in the position of Jupiter that was perturbing the solar system barycenter, and once my colleague at JPL, Michele Vallisneri, wrote this software to correct for this, the signal went away.

SC: Okay. So, has NANOGrav detected something? You don't have to tell us any secrets, but publicly, have pulsar timing arrays found any gravitational waves yet?

CM: So publicly, there is a lot of excitement about the last round of papers that have come out from NANOGrav, from the European Pulsar Timing Array, and from the Parkes Pulsar Timing Array, and then together from the International Pulsar Timing Array. Everyone has found a signal that has an amplitude that would signify that it comes from a gravitational wave background. The amplitude is commensurate with what we would expect theoretically to come from the cosmic merger history of supermassive black holes. Maybe I should take a second to just dig into that.

If you have one source submitting gravitational waves, you can detect that one source on the sky, but now imagine you have galaxy mergers that are happening all over the place, and then they are not only happening all over the place, but they've been happening for a long time. So you now get a build-up of signals in each one of the frequency bins that you're sensitive to. This creates a stochastic or random gravitational wave background. So, you not only have one signal, but you have potentially tens of thousands of signals. So you don't measure just one merging supermassive black hole, but you measure the amplitude of all of this gravitational wave signal that's interfering with itself, for lack of a better word.

SC: So just to be clear, we have the cosmic microwave background, which are photons, and they literally were all bumping into each other and bumping into atoms and it's all over the place. This is totally different...

CM: Totally different.

SC: And you call it a background just because it's coming from many individual sources that are sort of like, as far as our detectors are concerned, is one big smoosh on the sky? And they're from supermassive black hole mergers? What kind of mergers are we talking about?

CM: So if the sources are astrophysical, then yes, it would come from supermassive black hole mergers. However, people are very creative, and it's possible that there's also gravitational waves from inflation, so we call those—

SC: Super early universe?

CM: Exactly. Primordial gravitational waves, which could either be part of the signal or the whole signal. If it were the whole signal, then we would be in a very strange universe where we would have a big bounce and a big crunch. I know that you know all about this, Sean, that you would be in a kind of ekpyrotic style universe.

SC: Right. And crazier things like cosmic strings would give you gravitational waves.

CM: And cosmic strings also give you gravitational waves and a gravitational wave background. And so, in fact, what we have right now is that there's this amplitude of a gravitational wave background that we've found, but right now, the way that you distinguish between what's generating the background is how that amplitude evolves as a function of frequency. So, as you go to higher and higher frequencies, how does that amplitude vary? Right now, we don't have enough measurements in different frequency bins to say exactly how that signal is evolving. So we can't say for sure that that signal would be from supermassive black hole binaries.

SC: So it's not like LIGO where there was a big press conference where they announced the thing. It's something where it's going to creep up on us. There's already been papers saying maybe we're beginning to see the hints of this.

CM: Right now, we think that it's a hint potentially of a gravitation wave background signal because there's two parts to a detection with pulsar timing. So the first part is this amplitude. You see the same amplitude and all the pulsars that you're timing. That rules out anything else that could possibly be talking to all of these pulsars in the galaxy at the same time.

They have different noises until we cross-correlate all of the pulsars and RRA, because as you do this cross-correlation, anything that's not common and the pulsars fall away, and only the common signal is left afterwards.

This cross-correlation is important for two reasons.

You get what this amplitude is, of the gravitational wave background, and as you said correctly, this is something that builds up very slowly as a function of time. And so, we call this red noise. So, what we technically right now call the signal that we found is a common red noise process. And that just means that it is a low-frequency signal that's in all of the pulsars, we're not sure what it is. It looks promising...

Right now we have one piece of the puzzle, which is this amplitude, which is the same in all the pulsars. We have the signal that comes from NANOGrav, but also, Europeans found the same signal and the Australians found the same signal. And we do not use the same telescopes. We do time some of the same pulsars in the northern hemisphere, so there is some overlap between Europe and NANOGrav, but in the southern hemisphere, it's very difficult for anyone in the northern hemisphere to time those pulsars. So, it's curious. Now we've found a consistent amplitude, and it's also curious as to what that tells us.

If it does come from supermassive black holes, it means that the final parsec problem that we talked about doesn't exist. That none of them stalled, none of the black holes got hung up, they all managed to merge very fluidly. If there is a hang-up, if they do stall, then this decreases the amplitude of the gravitational wave background by about 30 per cent. And so the only way to get two black holes that have stalled to eventually merge, in the absence of anything else, is to realise, we believe that in the universe, we have these hierarchical galaxy mergers, eventually a third galaxy is going to show up with its own supermassive black hole. You're going to have this three-body interaction and the least massive black hole gets ejected from the system and the remaining two merge.

So, they always merge. Sometimes it would just take them a very long time to merge. If there is that kind of stalling, or if there's not enough stars, if there's not enough gas, that decreases the amplitude of the background by about 30 per cent. But if what we're seeing right now really is from supermassive black holes is completely inconsistent with any kind of stalling. So the universe finds a way to make supermassive black holes merge on a very reasonable time scale.

SC: Just to take a step back, because this is fascinating stuff. Like you accurately conveyed, it is a triumph of human ingenuity, to figure this out. It's almost like we have a spider web spread throughout the near regions of our galaxies connecting us to these pulsars, and we're feeling the vibrations in the web of pulsars. And the wavelengths of gravitational waves that are doing what we care about are tens of light years – so, visible light is very tiny wavelength, microwaves are a centimetre or whatever – and this is tens of light years' wavelength. We might be detecting it already.

CM: That's right. And that's why it takes so long to make one of those detections, because you have to, for an individual source, wait for one wave cycle to go by, and for the gravitational wave background, what you do is that you get more and more sensitive to the background as the number of pulsars you include in your array and then as a square root of the time. So, you can try to add more pulsars, but you're not guaranteed that if you get telescope time and point it at the sky, that you're going to find the pulsars that you need.

So, you want to have very long time spans, you want to have as many pulsars as you can. That's why the international collaboration is so important, because you not only increase your time spans, but you increase your number of pulsars, and you can also increase the density of the data points that you have. People have been timing different pulsars at different times, so if you can combine all of that data, you get this denser data stream that's going to be particularly useful for finding the individual sources.

SC: Closing thoughts, do you recommend that young people who are interested in the frontier of astrophysics think about this kind of thing as something to learn more about?

CM: Young people interested in the frontiers of astrophysics should work on whatever they think is the coolest thing that they can think of. For me, when I was a kid, it was black holes. I started working on the LIGO experiment when I was a graduate student, and then I thought that maybe pulsar timing arrays were a place where I could make more of a mark because it felt like LIGO was already very saturated, it was a very mature field.

But the only reason that you can ever make it through a PhD is if you really love what it is that you're working on. And so, my advice would just be to find the coolest thing you can think of and do that thing.

SC: Chiara Mingarelli, thanks so much for being on The Mindscape Podcast.

CM: Thanks, Sean, it's a pleasure.

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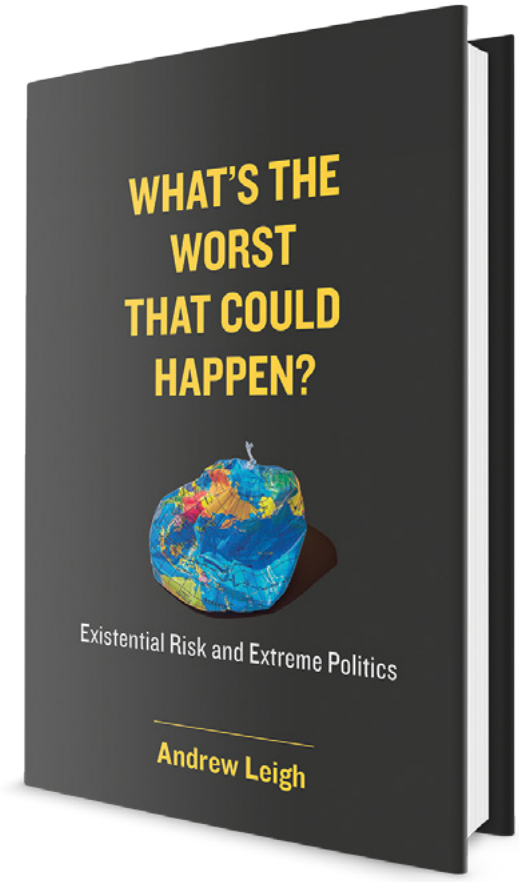

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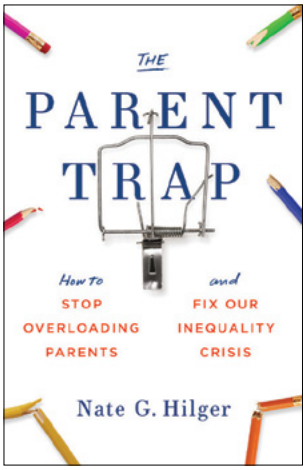

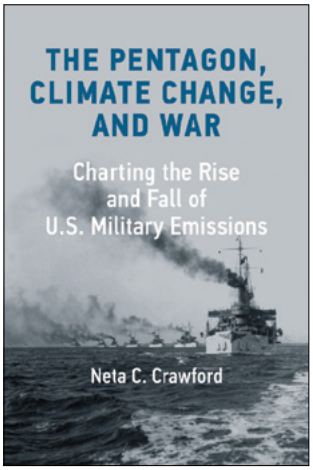

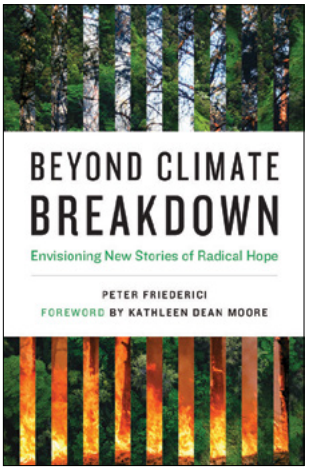

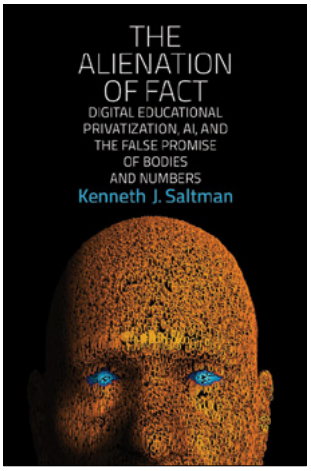

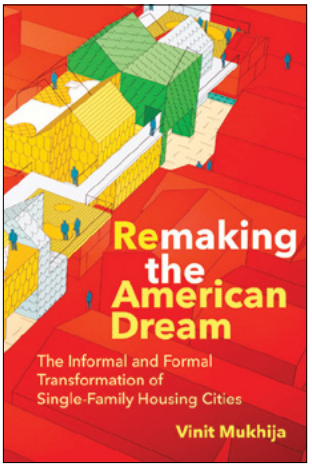

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The Pursuit of Happiness

LAURIE SANTOS
THE KNOWLEDGE PROJECT

Interview by Shane Parrish

Shane Parrish: You teach the Happiness course at Yale, which is the most popular course there. How did that get started, and what can you learn from the fact that so many people signed up for it?

Laurie Santos: The origin of the class was, I taught psychology at Yale for over a decade, but for most of that time I was a professor at the front of the classroom. So, I saw student life at college and at Yale, but not super closely. Then I took on this new role where I became a head of college on campus. Yale is one of these funny schools, like Hogwarts and Harry Potter, where there's these schools within a school, these dorms with different names. I'm head of Silliman College. That means I live on campus with over 400 students who are part of my college, part of my community. You get to create this community for all these intelligent, amazing, talented students, but it allowed me to see their life up close and personal.

And I really wasn't expecting the level of mental health dysfunction I was seeing with so many students reporting feeling depressed and anxious, cases of suicidality. At first I was like, 'Wow, is this Yale? Is this something about the ivy league?' But no, when you look at the national statistics, we are dealing with an enormous mental health crisis among our young people. National statistics report that nowadays over 40 per cent of college students report being too depressed to function most days. Over 60 per cent say that they're overwhelmingly anxious. Another over 60 per cent report feeling lonely, or extremely lonely most of the time. Over 80 per cent say that they're overwhelmed most days by all that they have to do. More than one in 10 has seriously considered suicide at least once in the last year. These are national statistics.

As I started realising this, I was like, 'Wow, we as universities are failing in our mission. These students aren't learning all the stuff we think we're teaching them, they're just not encoding it if 40 per cent of them are too depressed to function most days and they're so anxious that they can barely get the class.' And so, both in an attempt to do something for this community that I really grew to care about, but also fulfil Yale's educational mission to really get students to learn, I thought, 'We have to find ways to give students some of these strategies.' And so, it was really at that point that I retrained in this field of positive psychology and behaviour change to try to think, 'Okay, what strategies most does my field really have about how we can give our students better strategies, and what as individuals can we do a little bit better?

So I put together the class. It was a new class on campus. I thought thirty or so students would take it, which would be typical for a new social science class. I was a little surprised when we broke the registration form. Normally, the registration forms at Yale go up to 100 students, which is a large class on campus. But they actually had to change the access on mine because we had over 1,000 students shopping the class. So they had to bump the whole mechanism up by an order of magnitude, and in the end the only room that we could fit the class on campus was in the concert hall. So over 1,000 students enrolled the first time it was taught. You asked what did that tell me? It tells me students are voting with their feet. They don't like this culture of feeling stressed and anxious. They realise that this is toxic and that this is not sustainable. I think they really wanted some evidence-based strategies to deal with this. Students today really respond to a more scientific approach. They don't want a bunch of platitudes about how they should live their life. They're Like, 'Okay, what does science say? How can I implement these evidence-based tips?

SP: I feel like we have this psychological need to feel a part of something larger than ourselves, whether it's a sports team, or it's even sharing a connection with a friend, and that's become harder in some ways during COVID.

LS: Definitely. When I list out tips for how to feel happier, often the first one is to improve your social connection. Every available study of happy people suggests that

happy people are more social. They prioritise time with their friends and family members, but they're also just around other people more often. And we forget that. I think our instinct is like, 'Oh, I'll hang out with other people when I'm feeling social, or I'm in a better mood. When I'm kind of feeling in a bad mood, I want to plop down privately and watch Netflix or something.' But there are so many studies showing that if you intervene and force people to be a little bit more social, they wind up feeling happier, even with strangers.

There's some lovely work by Nick Epley and his colleagues showing that if you force somebody to talk to a stranger on the train, on their commute to work, for example, they wind up in a happier mood. They predict it's going to suck. They predict it's going to be awkward and, 'I don't really want to talk to somebody I'm going to feel anxious because I didn't get as much work done,' but in practice, it just puts you in a better mood that sets you up for the day.

Talking to the barista at the coffee shop, the chit-chat that you get in the office on the way to the elevator, wherever you're going, all those little moments got taken away at the height of the pandemic. And for many of us, got taken away when we're still working from home. And I think, again, these are invisible little hits about our wellbeing that we don't often see. But yes, social connection is a big one.

SP: What do we know about what makes for a happy relationship?

LS: Relationships are happiest when you're in a relationship with other happy people. I think we forget the power of attention to make our relationships better. If you look at some of the work on relationships and what kinds of factors can signal that your relationship is not going well, there's some work suggesting that it has to do a little bit with attention. Often in relationships, we make these kinds of bids: 'Honey, look at this stupid thing on the internet,' or, 'How did your day go?' or something. We're doing an ask of someone, and there are two ways our partners can react. They can attend to that bid and show you attention and respond back, or they could ignore it or blow it off, or they're not even paying attention because they're looking at their phone.

There's some evidence that you can make predictions about how a relationship is going based on just the number of those so-called bids that a partner responds to positively, when you're asked for attention, you attend back.

There are things competing for our attention. There are companies that are making millions and millions of dollars winning that war. My spouse doesn't have an entire team of Google engineers making his bids for my attention more interesting, but Instagram does. So we need to pay attention to how we're attending to our spouse and how we're devoting time in some ways that those are the biggest gifts. I think if you start solving those, you go a long way to the other stuff that comes with it. When you're more present, you can be more grateful. When you're more present, you can find more time for fun and play. But the attention and the presence come first.

> "I really wasn't expecting the level of mental health dysfunction I was seeing with so many students reporting feeling depressed and anxious, cases of suicidality."

That relates to another big thing we know is so important for happiness, which is having a little bit of free time. Why don't we attend to our spouses? It's partly the technology, but it's partly because we're busy and we just don't have time. Lots of evidence that one of the key ingredients for happiness that we often forget is what's known as time affluence, this just subjective sense that we have some free time.

Time affluence is the opposite of what's often called time famine, where you have this subjective sense that you're starving for time. We know psychologically that time famine feels a lot like real famine. It has the same physiological effects for your triaging stuff. It doesn't feel good. It activates your fight-or-flight, and it is awful for your wellbeing. In fact, some work by Ashley Whillans shows that if you self-report being time-famished, that's as big a hit on your wellbeing as if you self-report being unemployed. We know unemployment's awful for your happiness, just feeling like you don't have any time is bad too.

I think one of the reasons it's bad is when we feel more time-famished, it's harder for us to connect. I mean, we're just rushing. You're rushing. You don't even have time to connect, but you just have this triaging sense. You don't have time for social connection. You don't have time for that quick conversation with your husband. So giving yourself this subjective sense that you have a little bit more free time can open up windows for social connection, including the kind of social connection that you get with your partner and your relationship.

On Death and Reading

Photograph: davide ragusa

NIALL FERGUSON
JOLLY SWAGMAN

Interview by Joe Walker

Joe Walker: You've written a new book called *Doom*, which is a general theory of catastrophe. *Doom* is death writ at large. How do you think about death? And do you fear death?

Niall Ferguson: I don't fear death. I was brought up in a quite rigorously atheist household. My parents left the Church of Scotland really in disgust with the sectarianism that was rife in Glasgow in the fifties and sixties and I was therefore brought up by a physicist and a physician to believe that life itself was a cosmic accident and quite possibly a joke. And therefore, there was nothing after this brief time that we have. And that was it. Get over it and feel lucky that you get this brief lease of life.

I was led into studying history by the awareness of mass death. I think we all fear premature death, and I certainly fear the premature death of my children. Nothing would cause me more agony than if one of my children or more were to die before me.

JW: Have attitudes to death changed in the West?

NF: Profoundly. Far more than most of us realise. There's a wonderful book that I came across as an undergraduate Philippe Aries book, *The Hour of Our Death*, which is a history of Western attitudes to death. And Aries argues that in medieval times, and early modern times, death was as present and readily encountered as marriage or birth. And the rituals were in some ways similar so that you would expect

to go to funerals as often as to weddings, and you would expect to encounter deaths as well as births. Then in the nineteenth century that began to change. First, death was romanticised, became specialised in beautiful deaths, but he wasn't the only one. In the twentieth century we decided that death should simply be airbrushed out far as possible. And this was something even more made fun of and one of his best books, the loved one, makes fun of the American way of death. But it is extraordinary that most of us never encounter death until quite late in life when we're confronted by the death of a parent.

JW: Do you ever reread books? Or do you remember the last time you reread a book?

NF: There're some books that I've read multiple times. There are the books I've read to all my children, so there are plenty of those including the Harry Potter books. The best of all the books I've ever read to a child is still Tolkien's *The Hobbit*, an extraordinary book that benefits from being read aloud. So, I've read *The Hobbit* five times at least, six if you include the time I read it for myself, and I probably read it a couple of times as a boy.

The book that I've read multiple times in later life is Tolstoy's *War and Peace*, which is another of the reasons I became an historian. And that's a book that repays multiple readings. I probably don't have a wonderfully good memory. I'm always slightly shocked by how little I've really retained, and therefore how fresh the book seems. I think this is a disadvantage in one respect, because in a way, an historian needs to have a really good memory and have a lot of raw data sort of floating around excessively.

On the other hand, I think if one remembered too much of each book, there might be a problem of cluttering. And I have always said to students, trust your brain to be selective without too much coercion. It'll remember the things that are memorable, and that probably will be enough.

And unfortunately, today's young people are distracted from reading by any number of devices. I know I really do sound like I'm 57, but in fact, it's a tremendous problem, because they lose the ability to read *War and Peace*. I noticed at Harvard over the 12 years that each year when I asked who's read *War and Peace*, the number of people in the class would be smaller, until finally nobody had, and I'm not sure that it's possible to have the power, the physical mental fitness to reborn peace if you spent too long gaming. And so the game world is gradually eating the book world, and that's sad, because in the great works of literature that's where the wisdom is. It's all there. And if we lose the ability to get young people to read Tolstoy, then our civilisation will start to basically be deleted, and that's a great preoccupation.

JW: The people interested in reading some of these literary landmarks, would you recommend them making their way through Harold Blooms list in the Western Canon? Or do you think there's a better, more limited list?

NF: I think you should find a good library and just follow your nose. I think all these lists are strangely deadening. I think it's a sign of a petty mind to think you could boil it down to 100 books. So, don't even look at that wretched list. Go to the library as I did as a boy and just follow your nose and find the authors. And then when you find one that connects read it all. And I remember having that experience as a teenager with the great Russian writers of the nineteenth century. I couldn't believe it when I'd run out of Dostoevsky, it was a blow. I felt the same way when I ran out of Dickens. So I'm of the view that you should not think of great books, but of great authors. And once you find a great author, why would you just read one book? Read them all.

JW: Niall, if there was one big idea of yours to emerge out of your body of work that you wanted to be your legacy or to be remembered by future generations, what would that big idea be?

NF: If there's one, it's that history is the history of empires. You can pretend it's nation states, but that's really just a short period of time. It's mostly empires, and empires write down their doings more by and large than other policies. And a lot of my work has been concerned with different empires and their dynamics. I think as I was writing the history of the Rothschilds, it constantly struck me that I had been educated to think about European history as the history of nation states. You do German history and Italian history and you do French history, and you didn't really bother with the other stuff. But actually, that was just a very very misleading way to think about. In truth, nineteenth-century history was a time of Empire. And some of the Empires were European, but they weren't all.

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