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THE PRICE OF PRIMACY

Can the United States stop China becoming the dominant regional power?

ISSUE 05

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THE PODCAST READER

Welcome to Issue Five of The Podcast Reader, the first of our new – and larger – quarterly magazines.

Our new format means we are able to feature a broader range of outstanding podcast content. In this issue we present six full-length longform podcast transcripts, as well as four Podcast Bites, a new section of extracts from important podcast interviews.

In this issue we are delighted to present content from nine different podcast channels, including six channels for the first time.

Each issue of *The Podcast Reader* covers topics as diverse as the arts, entrepreneurship, history, politics, literature and science to showcase the impressive volume of brilliant content out there that often goes unappreciated. Traditional podcasts are great, but it's easy to be distracted when listening to them. A printed transcript makes it easier to highlight key points and follow difficult ideas.

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AGNES CALLARD

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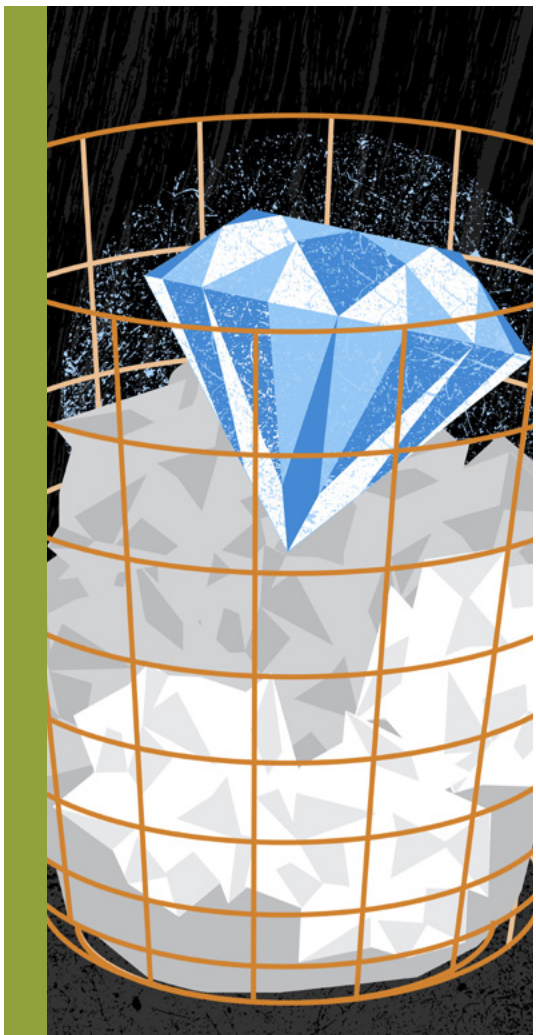

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“When you’re writing, you just have to disappear into another world. You have to disconnect from the current world, and all the concerns and people around you...”

SAFI BAHCALL

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FEATURED GUESTS

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FEATURED PODCASTS

DEMOCRACY SAUSAGE
THE PRICE OF PRIMACY
P. 6

THE JOLLY SWAGMAN
A FORGOTTEN GENIUS
P. 22

CONVERSATIONS WITH TYLER
ON NEWTON, SCIENTIFIC PROGRESS AND THE HIDDEN WOMEN OF SCIENCE. P. 34 & P. 86

THE GREATEST MUSIC OF ALL TIME
GOOD TEAMS KILL GREAT IDEAS
P. 48

MINDSCAPE
THE REAL EGALITARIAN
P. 60

THE GOOD LIFE
HOW TO LIVE
P. 74

THE KNOWLEDGE PROJECT
P. 88

HIDDEN FORCES
P. 90

CHARTER CITIES PODCAST
P. 92

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THE PRICE OF PRIMACY

Can the United States stop China becoming the dominant regional power?

HUGH WHITE
DEMOCRACY SAUSAGE

Interview by Mark Kenny
Illustration by Vaughan Mossop

Hugh White is Emeritus Professor of Strategic Studies at the ANU College of Asia and the Pacific, The Australian National University. He was the principal author of Australia's 2000 Defence White Paper. His latest book is *How to Defend Australia*.

Mark Kenny is a Professor in the ANU Australian Studies Institute. He came to the university after a high-profile journalistic career including six years as chief political correspondent and national affairs editor for *The Sydney Morning Herald*, *The Age*, and *The Canberra Times*. Kenny is host of the *Democracy Sausage* podcast.

Mark Kenny: Good day and welcome to *Democracy Sausage*, I'm Mark Kenny from the ANU's Australian Studies Institute and the School of Politics and International Relations. Now, if you rank the issues of major importance to Australia and the world in the twenty-first century, you're pretty hard to go past the pandemic. That's understandable because this is a genuine global emergency with now over 4 million lives lost. There are two other issues beyond the pandemic – and, of course, we hope the pandemic will be managed before too long – and they are climate change and the rise of China. Unfortunately, neither of these is likely to go away any time soon, and it's to the latter that we direct our attention today.

Hugh White is Emeritus Professor of Strategic Studies at the Australian National University, as well as being a former Deputy Secretary of the Department of Defence, and he wrote the Defence White Paper 2000. Welcome back to *Democracy Sausage*, you've been on here before.

Hugh White: Nice to be with you.

MK: Lets go to this question of China and start broadly. How serious is the situation that Australia finds itself in with China? Our largest trading partner and essentially our get out of jail card, really, during the GFC and even now I guess given China's voracious appetite for our iron ore and

some other things. It's certainly been a key part of our economic resilience in recent global crises and yet we see the bilateral relationship really in a very poor state.

HW: Yes, well, Mark, I think it is very serious indeed, and it's very serious at two levels. The first is the level you'd alluded to in your question, and that is that Australia has, for 25, 30 years, correctly seen China as the principal locomotive of our economic growth. And that has depended on there being a workable diplomatic relationship with China. We never believed we had to get on with China on every issue, but there had to be a basic level of acceptance. And although one can have an interesting debate about whose fault it is, there's no doubt that that has disappeared. That means not just that we've lost a whole lot of economic opportunities so far, particular commodities, wine, barley, so on. But also, and I think more seriously, it casts real doubt on the extent to which we're going to have economic opportunities in China in future. The key thing economically from my perspective is not that we've lost some billions of dollars a year worth of export markets that we used to have. It's that all of those markets that we thought we might be able to build in the decades ahead and which were so deeply embedded in our judgements about what kind of economic growth we were going to manage over the decades ahead, we must now be very sceptical about our chances of realising that unless and until something fundamental changes in the relationship. So that is, in itself, a very serious thing.

But that's not all, because I do also think it's important to recognise that the economic problems, the trade embargoes, and so on, the diplomatic imbroglio that we've fallen into over the last, well, 18 months, really, with China, is itself a symptom of something much, much bigger. And that is China's ambitions to become the dominant power in East Asia and our very deep and visceral sense that that's something we cannot accept. And if we ask fundamentally why are we in this predicament with the trade restrictions and so on that the Chinese have put on us, it's not just or primarily that Scott Morrison has been pretty undiplomatic in his dealings with China, though he has. It's that what underlies that fundamentally is that Australia wants America to remain the dominant power in East Asia and the Chinese want to take America's place. It's as fundamental as that.

Now, we have no model, just as we have no model for our economic future without the economic opportunities that China, as the world's biggest economy, and fastest-growing big economies would appear to offer us. But we have no model of our strategic future in an Asia in which America is not the dominant power and therefore China's rise and China's ambitions fundamentally threaten things that are really important to us. And I don't think as a country we've really begun to think through how we manage either of those great challenges.

MK: Now, I want to come back to some of those issues like the US dominance, and China's ambition to replace it and where Australia sits in. There are so many big issues there. But just sticking with the bilateral relationship for a moment, you mentioned diplomacy. Obviously, there's been some pretty cumbersome diplomacy or an absence of it almost, and in some of the communications going both ways. But how much should we really be surprised that we get the kinds of punishments that we've seen from Beijing, when in fact it's really just the external version of how it behaves internally? Which is to say it's an autocratic state, it doesn't believe in individual rights, it believes in the primacy of the party, in the primacy of the state itself. It's authoritarian, it's intolerant. It has some virtues, but it has many, many vices according to our values. And it is seeking to behave towards us as it does behave towards, say, internal dissenters.

HW: I think that is a significant part of it. One of the reasons why we, and for that matter a lot of other countries, are anxious about the idea of living in an Asia in which China becomes much more influential – living in a world in which China becomes much more influential – is that, exactly as you say, if you look at the way the Chinese Communist Party conducts itself with its own citizens, it's impossible not to draw an extrapolation to the way in which it's going to treat us. So, I think that is a significant point.

But I'd also make two other points, the first is that we don't want to over romanticise the way in which any great power treats other countries that get in their way. Now, I don't want to start sounding like I'm doing a paid political advertisement for the Chinese Communist Party, but the fact is that all great powers are pretty ruthless in trying to get what they want. If we were in Iran, for example, we would take the view the United States was extraordinarily ruthless in trying to get what it wants. Now, you might say, well, fair enough, because the Iranians have done some pretty terrible things. But still, we just need to recognise that what makes us worry about China as a great power in our region, potentially the dominant power in our region, is not just that it's communist. It's that it's likely to behave the way any other great power behaves and it's not our mate.

> if you look at the way the Chinese Communist Party conducts itself with its own citizens, it's impossible not to draw an extrapolation to the way in which it's going to treat us.

What makes Australia's perspectives on these things a little bit unusual and a little bit optimistic is that for all of our national life since European settlement, the strongest power in our world has either been Britain or America. They've behaved very brutally towards a lot of other countries, but they've never behaved brutally towards us because they're our mates. Now, China, whatever else it is, is not going to be our mate, so I do think that's a very significant factor. The other point is the fact that we've got problems with China is not just because Scott Morrison said some impolite things to them. The Chinese are perfectly capable of being very subtle and quite gently diplomatic when they want to be. I mean, they treated Australia with kid gloves for a long time.

If you think back, for example, after Barack Obama came to Canberra and announced the pivot – Julia Gillard and he announced the deployment of US Marines to Darwin. There was a bit of a sense of, whoa, what are the Chinese going to say about that, but in fact the Chinese went, okay, so they just were very gentle about that. There was no doubt they didn't like it, but they decided the best approach then was not to push us too hard and just to schmooze their way through. I think the Australian government also actually treated China quite carefully on that. And so, I don't think we should say that the way the Chinese are treating us at the moment diplomatically, again, is just because they're a communist party, a very authoritarian party. They can be gentle diplomatically if they want to. They've chosen not to be and we've got to ask ourselves, what's changed in Beijing's view of us that has made them treat us so differently?

MK: And what do you think that is?

HW: Well, I'm not completely sure, but I do think that as the strategic rivalry between America and China has hotted up – it's worth remembering that it was only at the very end of 2017, so still only a handful of years ago, that America formally declared China a strategic rival. Under the Trump administration, and then clearly under the Biden administration, that sense of a rivalry between America and China being really stark and strategic and zero-sum, has grown stronger and stronger. And so, I think the Chinese decided that they needed to push back harder against the US, and I do think we're being made an example of. I think what they're saying to other countries in Asia is, when the US comes knocking and asks you to support them more strongly against us, don't imagine it's not going to cost you anything. And if you want to see what it costs you, look at what we've done to Australia. One of the reasons why I'm pessimistic about our chances of resolving our problems with China is not just that they do as I said before, in the end, go to these very deep questions of strategic order. It's that I think the Chinese are quite happy with what they've achieved. They don't really want us to cave in. I don't think they expect us to cave in. I think they just expect us to suffer and for others to observe our suffering. And in that respect, I'm not sure they've done too badly. I don't see an awful lot of other countries in the East Asian region flocking to follow Australia's example.

MK: No, in fact there's really not been any particularly structural cost to China. Well, there's been a bit of rhetorical push-back from France recently, I noticed.

HW: Well, yes, but France is a long way away. The era when France, and Britain for that matter, had a big say in what happens in the western Pacific, disappeared on approximately the 7th December, 1941. And that's not coming back.

If you want to take the temperature of the way our Asian neighbours are seeing this issue, look at what Lee Hsien Loong, the Prime Minister of Singapore, is saying. Look what he said when he stood up next to Morrison, when Morrison stopped off in Singapore on his way to the G7 in Cornwall. Or what he said in a big article in *Foreign Affairs* magazine in June last year. He made a big speech

at the Shangri-La Dialogue the June before that. Very consistent message in all these speeches. What he was saying to the US is, we don't want a new Cold War in Asia, you are going to have to learn to live with China's power. We don't want China to dominate the region, but we're not going to support you in a new Cold War. You have to learn to live with the Chinese and make space for them.

Now, that's a very different message from what Australia's conveying. And I think it's a reflection, a very pragmatic reflection, as you'd expect from Singapore, of a country that has welcomed America's presence, but doesn't believe that standing up to China the way we're trying to stand up to China is going to work. And does believe it's going to cost them a lot, and what the Chinese have done to us over the last 12 months or more has reinforced that sense.

Contrary to what a lot of people here are saying that the Chinese must feel rueful that their strategy hasn't worked, because we haven't changed our mind – I don't think that's what they're after. I think for them the strategy has worked. They have – what's the phrase? Killed the fox to frighten the chickens? No, might be the other way around.

Well, people often think that the Chinese must be losing ground politically, diplomatically, because they make people frightened. Oh no, no – that's what they want. They've read Machiavelli, they'd rather be feared than loved.

MK: Yes, and they think it's more likely, more achievable?

HW: Yes, that's right, exactly.

MK: What can we take from Japan's approach? I guess New Zealand comes into this as well, because these are close allies of Australia. And, of course, Japan being part of the quad. But both of these countries have, I guess, you might call structurally similar positions to ours, similar not identical, but quite different rhetorical framing of it.

HW: That's quite right, they're both very interesting cases. I mean, New Zealand's interesting because in so many ways they're like us and Australians very readily just assume that we're really just identical. In fact, Australia and New Zealand, considering how similar we are in so many dimensions of our national life, has a history of surprisingly different strategic perspectives from ours. For example, the whole nuclear-powered warships visit story back in the 1980s which was pretty seismic in its time, showed that New Zealanders just took a different perspective. I think in New Zealand's case, they are less wedded to the idea that American power is the only possible basis for a stable order. And I think they are more conscious than we are that their economic future depends on China, because they're less inclined to take it for granted. Both Australia and New Zealand threatened to fall into a big hole when Britain entered the European Union Common Market as it then was back in the 1960s, early seventies. Australia bounced out of that hole because we had all this iron ore to sell, and New Zealand didn't, so New Zealand's economic story has been much tougher than ours for the last few decades.

> "in the long run they have no alternative but to find a way to get on with China. Because in the long run they can't depend on the US the way they have in the past. Often, geopolitics seems very complex, but sometimes the heart of it is something very simple."

We continue to think that whatever else happens, we'll just keep on selling mountains of iron ore to the Chinese, and not much can go wrong. You can see the way in which a lot of Australian commentary about the difficulties with China in the last 12 months or so have been framed around the idea that whatever happens, the Chinese have to buy our iron ore. And when iron ore is $200 a tonne, there's a limit to how much damage they can do to us. The New Zealanders are not nearly that complacent and I think they're much more conscious about the point we were discussing

before, about the importance of future economic opportunities in China, to their economic trajectory. So, on the one hand they're less economically complacent, on the other hand they're less strategically committed to the idea of the US as the only possible guarantor. So, I think they are taking a more open-minded approach.

Japan is fascinating because, of course, Japan really does feel threatened by China, and we all know both the geographical and historical framing for that. And of course, Japan is a very close ally of the US, and ever since 1945 has absolutely depended on the US for their security. So, the anxieties we feel about China, and the sense of dependence we have on the US is, in some ways, in Japan, amplified fifty times. But on the other hand, Japan's relationship with the US has got a much more complex and ambivalent historical foundation. I mean, we just love America because they've always been there for us – at least that's the story we tell ourselves – it's not quite that simple. But no one in Japan thinking about the US alliance forgets the fire-bombing of Tokyo, or Hiroshima and Nagasaki, or the occupation. And nor do they forget Japan's own time as a great power in Asia. They're very conscious of the fact that in the long run they have to get on with China, and China's always been there, and Americas only been there for 100 years. And so, the need, in Japan, to both nurture and protect the US alliance as much as possible is because they're so scared of China. But also, to find a way to manage relations with China.

MK: The geography isn't going to change; they've got China very close to them physically and that's going to be the case forever. Alliances come and go. Big, great powers can wane and so forth, and we arguably see that in process right at the moment. So, their longer-term security has to be with China as well as against it in a sense.

HW: That's right. That is the exactly right, in the long run they have no alternative but to find a way to get on with China. Because in the long run they can't depend on the US the way they have in the past. Often, geopolitics seems very complex, but sometimes the heart of it is something very simple. And the something very simple at the heart of Japan's geopolitical, geostrategic dilemma, the stronger China becomes, the more threatening it is to Japan and the more costly it is for the US to protect Japan from China. Therefore, as China becomes stronger, Japan is both more threatened and less able to depend on the US. So, it's more important for it to be able to stand up for itself and more important for it to be able to manage relations with China. You can see that happening right now. On the one hand, as you say, Japan's a member of the quad, Prime Minister Suga was the first foreign leader to turn up at the White House under the Biden administration, all of that. On the other hand, in Tokyo right now they're working like mad to plan and execute a formal state visit to Tokyo by Xi Jinping. Now if you want an index of how different Japan's approach to China is from Australia's, notwithstanding the fact that we're both very worried about China and were both strong allies of the US, the Japanese really want to keep the relationship with China workable.

MK: And it would also be true to say, would it not, that the more febrile and competitive the relationship is between the two great powers, between China and the US, the more difficult it is for Japan, because it can't physically step away from being the meat in the sandwich there?

HW: That is exactly right. The simple-minded model that I think a lot of people in Washington and Canberra have is that the scarier China becomes, the more scared Japan becomes, and the closer it clings to the US, and so the stronger the US becomes. But, in fact, that's not what's happening. The scarier China becomes, the more the Japanese think, whoa, we can't afford to alienate these guys. So, they are trying to walk both sides of the street, in the sense, as we were for a long time – that is, clinging to the US without offending China. Now, during the last 18 months or so, Australia's thrown that model overboard and has sided completely with the US.

MK: We used to talk about when and whether we have to choose, and it feels like we've chosen?

HW: Yes, that's right. For a long time, really right back to John Howard's day, the great Australian mantra was, we don't have to choose between America and China, we don't have to choose between our history and our geography. And that's always a very attractive idea, because you don't want to make choices you don't have to make. Scott Morrison was still saying 'we don't have to choose' as late as 2019. And every Australian prime minister, and for that matter, every Australian leader of the opposition, going all the way back to Julia Gillard in 2010, I think it was, have used that exact form of words. We don't have to choose between America and China. Obviously, we don't want to choose between America and China but there's more to policy than expressing vain hopes – when Australian political leaders kept on saying we don't have to choose, what they were really saying was, we somehow think this whole problem's going to

go away. We somehow think that China can rise the way it has, and America can continue to remain the dominant power in Asia and the two won't compete. Well, that always just seemed to me to be a complete fantasy and it was always the case that we were going to be compelled, not necessarily to make the binary choice – that either you side with America and abandon China or vice versa – but have to make a whole lot of complex choices about how you position yourself in between them. Now sometime in March or April last year Scott Morrison decided that he was just going to choose, and boom. And here we are, and I think that's why the Chinese have turned the knob on us so hard after having dealt with us so gently for so long. It was the sense that Australia had stopped trying to balance the US and China, but it simply said, we're going to back the US.

MK: Because even that attempt, even that trying, difficult though it may have been, and lacking in credibility though it sometimes may have appeared, was a recognition of the fact that we had a very strong relationship with China in multiple levels, and you've got to respect that.

HW: And huge interests, that's exactly right. I don't want to sound like I'm justifying Chinese policy – I think they're complete bastards – but that's exactly what they told us. They said, if you think you can treat us like that and still get all the benefits you want from our rise, you're kidding yourself. That's the contrast, if you go all the way back in 2003, John Howard hosted, on consecutive days, formal state visits by Hu Jintao, then President of China, and George W Bush. They both, on consecutive days, addressed joint sittings of the houses of parliament.

MK: I was there.

HW: You must remember, it was the most remarkable piece of theatre. The weird thing was it was George Bush who copped the demonstration outside rather than Hu Jintao, by people who were saying, you've got to support democracy. Well, George Bush had his shortcomings as a president, I think we would all agree on that... but what Howard did then was to very dramatically and quite artfully demonstrate – this was the year of Iraq – that no one was a stronger ally of the US than John Howard, but he was demonstrating to everyone including to the Chinese, how important we see this relationship. In his speech welcoming Hu Jintao, he said something like, we know there are issues upon which you and we are going to differ, and we know there are issues upon which you and the US will differ. And it will be Australia's role, always, to represent to both you and the US how important it is that you put those differences to one side and get along. Let's focus on the things that unite us, not the things that divide us. Very John Howard line. Now, that was the perfect articulation of the kind of position that a country like Japan now adopts. It's the perfect articulation of the position that Australia abandoned for some reason 18 months ago. The question we've got to ask ourselves is where do we think that's going to end? What's the strategy and what's the strategy aiming to achieve?

MK: It's such a good question, because China's not going to go away.

HW: No, that's right.

MK: And I know that that sounds like a really prosaic statement but it's so fundamental to all this.

HW: No, but actually, Mark, you can turn that argument on its head and say, what must these guys – I mean the Australian government – think if they think what they're doing now, if they think that alienating China the way they're doing it is a good strategy? Well, they must think that China is going to go away. In other words, they must think that China is going to be persuaded to back off its challenge to US power and somehow accept America as the dominant power in Asia, accept America as the dominant power globally. Even as China's economy grows to overtake the Americans and, indeed, according to government's own estimates, to a significant degree surpass it. And you might say, well, how could they possible expect that? Well, the point is, that's what they think in Washington. The rationale for America's policy, as I see it, is that they somehow think if they just push hard enough, the Chinese will decide that this is all a big mistake and they're going to give it away. Well, they've met very different Chinese from the ones I've met if that's what they think.

MK: And the ones we're all seeing. Malcolm Turnbull and many others have referred to the Thucydides Trap, the notion that conflict is inevitable, really, as one power rises to take on another and perhaps to replace it as the dominant power. Is that still the inevitable in your view, or is there a way that this can be worked out?

HW: It's a really important question. I mean, just to defend poor old Thucydides, I think the scholars would argue that the word he used in Greek when he said it was the rise of Athen's power, and the

Photograph: Michael Afonso

fear this generated in Sparta made war inevitable, didn't actually mean inevitable. It meant something like very bloody likely, and that's the significant difference. Inevitable is a very big word in human affairs. I don't think a war between the US and China is inevitable...

MK: Is that a way of saying you don't think that an invasion of Taiwan is inevitable? Or are you saying that the US might not step into it?

HW: That's it. Well, put it this way, war can always be avoided by one side or the other giving up. Actually, if you look back through history at the other examples that people cite of the Thucydides Trap at work – rising power meets an established power – the time when they didn't go to war was the time when the established power said to the rising power, oh okay, okay I'll step back and give you some space. And that's a clear possibility.

MK: So that's a kind of a sphere of influence argument isn't it, really, or at least it fits into that frame...

HW: Well, exactly.

MK: Where the world would make a pragmatic decision, the US would make a pragmatic decision that although it doesn't like it, although it's been a long-term friend and supporter of Taiwan – if it did happen that a strategic pragmatic decision is taken to accept that, going back to your original point, that is what great powers do. They establish spheres of influence, they secure their peripheries, and they need living space, if I can use that phrase...

HW: That is exactly right. Just to make the point a little bit more harshly, that's exactly what America's done in the Western Hemisphere since 1824 under the Monroe Doctrine: hands off, this is our part of the world. No other power from outside the Western Hemisphere will have any kind of strategic role in this part of the world, we are in charge. And if you're Mexico or Canada, let alone Cuba or Venezuela, you might think that that's a pretty rough kind of idea. But it's worked in the end, and it certainly worked for America.

MK: Justified Hawaii even?

HW: Well, exactly, yes. And one option for the US and the way in which war could be avoided is

the US says, okay, well, we've been the dominant power in the Western Pacific for a long time, it's worked well for us, it's worked well for the Western Pacific. But things have changed now, we're going to step back. And it could either be step back completely and leave the East Asia and the Western Pacific to China, or step back partially and say, okay, we'll have some sort of power-sharing arrangement. We're going to be less influential, you're going to be more influential but we'll still be here to play some kind of role. Now, I've long argued that that second option would be the best outcome for Australia. I mean, the best outcome would be American primacy continuing, but if you don't think that's possible, and I don't think it is, in view of China's power and ambition, then America only stepping halfway back would be much better. It would be very hard to do, you'd have to negotiate some kind of power-sharing arrangement.

MK: It would involve really changing the architecture, the multilateral architecture around the world, things like the World Trade Organisation, the way the security council works, these sorts of things.

HW: Well, yes, although I think I'd also make a distinction between the way East Asia works and the way the global order works. Because I think at the global order, people sometimes worry that China's going to the rule the world. That's not going to happen. No country has ever ruled the world, actually. China's going to be very strong, it's going to be the strongest power in the world for most of this century, but it's not going to be the only strong power in the world. There's always going to be lots of other powers, including, of course, the US which is not going anywhere. And India and Europe and Russia and so on. So, I'd think we're going to see a global order, and those global institutions that underpin it like the UN and WTO and so forth, in which China plays a significantly bigger role.

But in East Asia, in its own backyard, I think China is not going to want to play a significantly bigger role, it's going to want to play THE role, like America does in the Western Hemisphere. So, if the US can negotiate with China to persuade China to accept a continuing US role in East Asia and the Western Pacific, that will be a very hard thing to do, better for us.

MK: Kind of vital for us, really?

HW: Well, nice if we can have it, is what I'd say. Because in the end, we may end up having no choice but to accept China as the dominant power in East Asia and the Western Pacific. Now, that's

"China's going to be very strong, it's going to be the strongest power in the world for most of this century, but it's not going to be the only strong power in the world"

a very gloomy thing to say, but if you just look at it historically, objectively, so to speak, like a Martian would look at it coming to earth without any of the background, and say, well, here's China, world's biggest economy, very strong military, very strong economic and diplomatic weight. Why wouldn't you expect it to be the dominant power in its own backyard, the way America's the dominant power is in its own backyard?

MK: Well, that's a really good question because there was much positive talk about the Asian century not so long ago. And it always struck me as kind of odd not to accept the proposition that seemed to be embedded within that, that of course there would be an Asian hegemon.

HW: Yes. Well, that's right, and a lot of the talk about the Asian century, both in Australia and in the US and elsewhere, was predicated on the idea that the Asian century would and could only happen if America remained the dominant power. Go figure.

MK: So, the American century gives way to the Asian century but with the Americans still in charge?

HW: But with the Americans still in charge. I have had a lot of conversations with Americans about this, right through the last, well, two decades. And there is the very strong conviction that the Asian century had to be an American century too,

because only America could keep Asia peaceful and stable. I wrote a book ten years ago called *The China Choice*, which was about this idea of the US and China sharing power. And as one does when one writes a book like that, I spent a lot of time wandering around the US giving seminars to anyone who'd listen, trying to flog the book and sell the idea. What I kept on finding, and this was only in 2010, 2011, so China's growth rise was already a very big deal then, even very sophisticated Americans who knew China very well simply couldn't get their head around the idea that China might seriously challenge American leadership in Asia. And they had a whole range of arguments – it's not going to be strong enough economically, it won't be strong enough militarily, it won't be strong enough diplomatically, it won't really want to because it benefits from America's presence. And if it does challenge in the end, we'll just beat it and they'll back off. I found it quite hard, actually impossible, to sell people on the idea that America seriously had to start thinking of compromising with China.

MK: Was this an arrogance that was based on old thinking about command economies and the dead end that they're in? I mean, because the other things you'd often hear was that the military, the strategic power of China was so much less significant than that of the US. The military might of the US is vast.

HW: That's right. There were several components to it, one was a conviction that China's economy couldn't keep growing. At any one time, and the same is true today, you can open a newspaper anywhere in the world and there'll be an article saying the Chinese economy is about to hit absolutely fundamental problems, which is going to make the whole thing grind to a halt. And of course, it's always possible. They've done a totally remarkable thing for the past 30, 40 years, decades. Ten per cent per annum real growth year after year, it was always a chance the whole thing would come crashing down. My point to them was, yes that's possible, but don't bet on it. I mean, I might win the lottery, but I'm not going to sacrifice my superannuation and rely on that as my salvation.

MK: Yes, a dubious idea.

HW: The fact is that the evidence is against it, because, in fact, the Chinese Communist Party have always faced significant barriers to keeping China's economy growing, and they've always overcome them.

MK: Within all the doctrine and all the hard-line and everything else, there's a huge pragmatism there isn't there?

HW: That's exactly right – pragmatism and a real capacity to formulate and implement policy. In Australia today we don't take that for granted anymore – seeing a country that can identify a problem, analyse how to deal with it, get a solution and implement that solution across a country of 1.4 billion people, it's a formidably effective system. A very dear friend of mine, David Shambaugh, wrote an essay a couple of years ago which he called *The Coming Collapse of China*. Now, this is a bloke who really knows China well and a very lovely guy, very sophisticated. I regard him as a dear friend and a very respected colleague. But I did write to him and say, mate, I mean, maybe, but really where's the evidence that this is going to happen now? And so, across the US system and the Australian system, the very strong conviction was that somehow this problem was going to go away because the Chinese would solve our problem for us by screwing it up. And all I can say is we can't rely on that. The only prudent basis for Australian and, for that matter, American policy is to adopt as a working hypothesis that the Chinese are going to make this work. And that means their economy will end up ... well, the Department of Foreign Affairs and the Foreign Affairs White Paper of 2017 had the estimate that by 2030 China's economy would be $42 trillion and America's economy would be $24. Forty-two to twenty-four, now, that's not just China edging ahead of the US. That's surging past. America's still going to be a very strong country with huge assets and a lot of power, it's just not going to be powerful enough to confront China in China's backyard. China's not going to become powerful enough to confront America and the Western Hemisphere, but they're going to be equal powers. Henry Kissinger, who's a complex figure but quite a good analyst, foreshadowed precisely this situation in the book he wrote 30 years ago called *Diplomacy*. In which he said, the thing about the US and China is not that they're so different, but that they're so alike.

China's desire to achieve in its own region what America's achieved in the Western Hemisphere, and its capacity, as America's capacity, to marshal the vast resources of a continental-size country with a huge population, with immense reservoirs of human talent, they are kind of similar. They're more similar than the US and the Soviet Union were.

MK: And yet the thesis is also that, as you were saying at the start, super powers or major powers have certain common characteristics, they'll

always behave in very self-interested ways. And Paul Keating, for example, has been quite critical of NATO, what he called, nibbling at the pie crust by eking away these peripheral states of the old Soviet Union because of the message that sends and the attitude it sets up in Moscow, for example.

HW: Yes, that is exactly right. And, in fact, although the cases are very different in some ways, there are important analogies between what's happening between the US and China in East Asia, and Russia and the US in Europe. At the end of the Cold War, there was this phenomenal burst of optimism that somehow America had emerged as a unique power – people called it a new Rome. The end of history idea, that America was simply going to be un-challengeabley powerful.

MK: The liberal democracy had triumphed...

HW: Exactly. And that the whole world was going to accept America as a global primary power, America was going to rule the world, and all the other powers in the world, including China and Russia, would just say, fine, we'll live under that framework. It was a very attractive idea, would have been great if it had proved to be true, but it just proved not to be right. And it proved not to be right in all kinds of ways, it didn't work out in the Middle East, we know that. But it didn't work out in Asia, because in the end China did want to establish its own sphere of influence. And it didn't work out in Eastern Europe because in the long run, Russia was never going to accept the way in which its Western borders were redrawn at the end of the Cold War. And that was bad enough by itself, but when NATO started moving into what had been not just Russian sphere of influence, but Russian territory. The whole story about the Baltic states, for example, I'm not saying that there wasn't a great deal of evil in the way in which Russia and the Soviet Union absorbed the Baltic states.

MK: And indeed hunger within those populations yearning for freedom...

HW: Of course, yearning for freedom, absolutely. And I have a great deal of sympathy for that. But the fact is that power politic is a pretty brutal business. And so, the West's objective at the end of the Cold War should have been to reframe the international order in Europe in such a way that Russia would be content with it. And that Russia would emerge as a stable, prosperous, effective country that was a happy member of that order.

MK: And would see some dividends from that order...

HW: Exactly, and were going to feel as all countries want to feel: secure and prosperous and respected. And to push NATO into Eastern Europe was, frankly, destroying the chances of building an order in Europe that Russia could accept, and now we live with the consequences.

And likewise, as China's power grew it seemed to me it was always going to be necessary to reframe the Asian order in ways that give China a status that it's willing to accept. Now, people resist that, and to a certain extent I resisted, or at least I regret it because there are so many things about China that are so unattractive, frankly frightening. But the fact is the alternative is, this gets back to Thucydides, in the end if you don't make those compromises you end up being driven to war. And we should not underestimate the probability that that's what's happening at the moment

MK: You mentioned the word respect before, and I'm interested in, I suppose, Frances Adamson's' comments, the outgoing head of DFAT, at the Press Club. She made a very interesting observation about China, where she said that it had a combination of great power and considerable insecurity, and that this is a very dangerous combination. It struck me as a clever observation. Just your thoughts on it?

HW: Yes, I think there's something in it. I wouldn't have actually used the word insecurity. I'd have used the word dissatisfaction. I mean, China does feel, I'm sure, that the present order in East Asia doesn't work for it. At least doesn't work for it now.

MK: But it seems to yearn for that kind of respect, and that's what I think she meant by insecurity, that sort of sense that it's like a huge teenager.

HW: Well, I think we need to be a little bit cautious about that. China certainly does want respect, but I don't think it's so very different in that way from every other country, including Australia. Every country, and citizens in every country, and not just democracies, want their country to be respected. And people are very sensitive to that, Australians are very sensitive to that. When Scott Morrison stands up and says, Australia absolutely must stand up to China because our sovereignty is at stake, what they're saying is, you can't treat us like that. Well, I think the Chinese have a very strong version of that and it's worth remembering or just trying to reflect on the personal experience of individual Chinese. If you're Chinese, you come at the question of China's status in the world today

> as China's power grew it seemed to me it was always going to be necessary to reframe the Asian order in ways that give China a status that it's willing to accept... in the end if you don't make those compromises you end up being driven to war. And we should not underestimate the probability that that's what's happening at the moment.

with four very big elements. One is, of course, a very intense sense of China's millennial history as a great power stretching back 4,000 years, and it's true in some ways. It's a complicated story but there's a lot in that. The second is a very strong sense of China's humiliation at the hands of the West, between the Opium Wars in 1949. We in the West might think that they overplay that a bit, maybe they do, but naturally the basic structure of the story is pretty right. The great Chinese state was taken apart, partly by what happened inside China, but to a significant degree because of the intrusion of the West into China, and the weakening that that caused. Then the third thing is a phenomenal sense of what China's achieved, but not so much since 1949, but since 1979. And Chinese of our generation have themselves live through the transformation of China from an incredibly poor country to the country we see today. And one just has to acknowledge how proud they must feel of that. Then there's a sense of China's future. I don't think there's a lot of complacency in China, but there's a lot of confidence that they know how to make this work. So, with that sort of framing, do they want to be respected? You bet. I think we risk belittling that by calling it insecurity. And I think we don't want to glamorise the Chinese.

MK: I hope I've quoted her correctly then, because...

HW: Yes, and it's a widely held view. There is a genuine point to it. That is, that China feels that its prospect for future economic growth and its prospects for the kind of security it wants, depend on it being able to establish that sphere of influence. It's the point you made before, that's what great powers do. The Russian phrase is the 'near abroad' – they want to dominate the region around them. And actually, so do we. We claim, in effect, a sphere of influence in the Southwest Pacific.

MK: Precisely, and we get pretty edgy when we see Chinese providing money or whatever.

HW: We've always been edgy about any potentially hostile major power intruding into the Southwest Pacific because we believe that's our backyard. And so, we shouldn't be surprised, and I don't think we should be dismissive, that China feels somewhat the same way. Just as America feels its security and prosperity depends on dominating in the Western Hemisphere. Now, again, saying it's understandable doesn't mean I like it, it doesn't even mean I think it's necessarily justifiable, but it's real and it's something we need to learn to deal with. Although I think there is an element of insecurity, and therefore an element of justification in Frances Adamson's formulation, I don't think that's the best way to think of that phenomenon.

MK: I've got one last thing to raise with you, and that is the prickly question of a conflict, were it to occur. You've written about that recently and you've said that it could have extraordinary dimensions. Can you just speak to that?

HW: It's a difficult issue in some ways because it's hard to talk about it without seeming really alarmist, without sounding a bit Wagnerian and alarmist about it. But I do think, and Thucydides

Photograph: Maria Oswalt

is right to this extent, that the contest between America and China in Asia today is a contest between the world's two most powerful states over which one of them will dominate the most dynamic and important region in the world. So the stakes don't get any bigger than this, and this is exactly the kind of issue the great powers do go to war over. And so, I think the chances of a US-China war over the next few years are really quite high. And one of the things that makes it high is that unlike during the Cold War, but like, for example, the lead up to the First World War, there's a real danger that both sides underestimate the resolve of the other. The reason why the Cold War never turned into a hot war is that in the end, both America and Russia respected one another's spheres of influence – Stalin had Eastern Europe, Washington had Western Europe, and there was a big line down the middle.

MK: And that's why the Cuban Missile Crisis was the crisis that it was. Because it breached that.

HW: Exactly. That's exactly right. Because that was one of the few times where Khrushchev, in that case, miscalculated. But what they both learnt from that was we're not going to do that again. There's a big red line and neither side of us is going to cross it, and neither side was going to cross it because both sides knew that the other would fight a nuclear war if they did. The risk in Asia today is that the Chinese think they can push America out of Asia without a war because they think in the end the Americans will back off. And the Americans think they can deter the Chinese from doing that because they think the Chinese will back off.

MK: Because they think the Chinese will calculate that if America enters it becomes too costly?

HW: That's right, it becomes too costly. So, neither side wants to fight the other, but both sides hope they can achieve their objective without fighting the other, because the other side will back off rather than fight. And that is exactly what happened in 1914. When people look at the analogy with 1914, they often say, well, that's one of those Thucydides examples of a rising power

meeting an established power. And it was that, but much more importantly, what happened in 1914 is that everybody underestimated everybody else's resolve. The Austrians thought they could attack Serbia after the assassination of the archduke without being attacked by the Russians because they thought the Russians would back off. And the Russians thought they could attack Austria without being attacked by Germany because they thought the Germans would back off. And the Germans thought they could attack Russia without being attacked by France because they thought the French would back off. And none of them backed off. And the danger we have as a crisis emerges, and it easily could, the Americans will think, we must defend Taiwan, for example. And if we make it plain that we're going to defend Taiwan, the Chinese will back off.

MK: The American policy at the moment is strategic ambiguity on that, basically.

HW: It is and that's dangerous.

MK: Yes. Well, it feeds that uncertainty, doesn't it?

HW: Because it feeds the uncertainty.

MK: They call it strategic ambiguity because they want an out. And therefore, they read that as code for, well, when push comes to shove, they'll step backwards.

HW: That's right. Well, the original idea of strategic ambiguity was that the ambiguity would be resolved in different ways on different sides of the strait. That the Taiwanese would believe the Americans probably wouldn't support them, so they wouldn't do anything stupid. And the Chinese would think the Americans probably would support them so they wouldn't do anything stupid. The risk is that that's now precisely reversed, and the Chinese assume that America won't defend Taiwan, and I think there's a real risk of that. And one of the reasons for that is that, back when the present policy was first formulated by the US, America was sure to win a maritime war in the Western Pacific against China. The Chinese navy and air force weren't worth anything, and America's position was absolutely dominant. But in the last 25 years, in fact, since the Taiwan Strait Crisis of 1996, the Chinese have done a very clever job of investing in exactly the right capabilities to win a war, or at least to stop America winning a war over Taiwan. And so, the cost and risks to the US of winning a war over Taiwan have gone up and therefore the chances that they can persuade the Chinese they're willing to fight that war have gone down. Now, that's not to say that the Americans won't fight it, but it means they won't win it and it also means that the war is more likely to break out, because of the chance of miscalculation on both sides. It's hard to exaggerate the seriousness of that, because we're not talking here about another bad day in the office like Iraq or Afghanistan. First thing, it would be the first war between great powers since the Second World War. Well, there were some skirmishes between the Chinese and the Russians and the Soviets in the late sixties. But it will be the first war between nuclear-armed states, except for a little skirmish between the Indians and the Pakistanis. It will be the first maritime war, large-scale maritime war, except for the Falklands Crisis, since 1945. And neither side's going to win. I think the chances of it turning into a full-scale regional war are very high, and the chances of escalating to a nuclear war are high. And the chance of it breaking out overall is not low. I mean, if it happens, if there's a war between America and China sometime this year and next year, no historian will look back and say, that came out of a clear blue sky, no. They'll go back and look at what's happened.

MK: And look what everything that Xi Jinping keeps saying about it being part of the overall plan.

HW: Exactly. And look at everything that the Americans keep saying, and saying, oh, well, that was going to happen.

MK: There was a fair bit of signalling there.

HW: They'll say it was inevitable. It wasn't inevitable.

MK: That's right.

HW: But it was very risky, and I've often said that one of the big differences between my whole perspective on this issue and most other people's is that I rate the risk of a US-China conflict higher than most other people. I rate the chances of that conflict escalating to a truly catastrophic war higher than most people. And I therefore think it's more urgent to do whatever we can, including making significant sacrifices, which is what we'd have to do in order to avoid that. When we sit here in Canberra, or in Australia, or for that matter in Washington DC, and say, we'd like America to remain the dominant power in Asia. Yes of course we would, but what are we prepared to pay for that? And the thing we've got to remember is that if we start a war over that, we won't win it. We can't preserve US primacy in Asia by starting

a war with China, because bar anything else, what does winning a war with China mean? We know what winning a war with Japan or with Germany meant. It meant that we or our allies occupied the capitals of those countries, destroyed their system of government, replaced it with one we liked better.

MK: Achieved total surrender.

HW: Exactly. Now, whatever else happens, the Royal Australian Regiment is never going to march across Tiananmen Square, and neither is the 101st Airborne, any more than the PLA is going to march down the main street of Washington, the mall in Washington DC. I hope they don't march down Anzac Parade. If we think there's a military solution to this, if we think we can either deter China from challenging the US or fight a successful war to defeat that challenge, we're kidding ourselves, particularly if it's a nuclear war. Now, an earlier generation of strategists, the men and women who sat down after the Second World War and asked themselves what does the advent of nuclear weapons mean, understood that this changed everything. And of the things that worries me is that in the decade since the end of the Cold War, we've forgotten about how important nuclear weapons are in these calculations. And we've started again to think that we can just push one another around the way they tried to do in 1914.

MK: It's almost like there's an assumption that they're so horrific that they won't be used. It's like they've stopped being as dangerous as they used to be because we're smarter now or something.

HW: That's exactly right and what they forget is that although the tensions of the Cold War disappeared, the weapons didn't. There are still, right now as we speak, submarines at sea with missiles, with multiple warheads. The Chinese have now got submarines at sea, there are intercontinental ballistic missile in their silos, ready to go. It's as dangerous as it was during the Cold War, and with much less caution. I mean, people talk at length about the idea of a US-China war without ever mentioning they're both nuclear-armed states.

For someone of my generation – my first decade in this business was the last decade of the Cold War – we thought about nuclear weapons all the time. And I keep on wanting to jump up and shake people and say, remember what nuclear war means.

MK: Yes, it's a very good point. It's a very sobering warning to end on. Hugh White, I can't think of a more interesting and rewarding conversation to have. I really enjoyed it and I'm sure people listening will have the same view, even if we've ended on that very stirring sort of note.

HW: Thanks very much, Mark, I really enjoyed the opportunity. Don't get me into the studio if you want to end on a jolly note.

MK: What was your most recent book, because you've written many?

HW: My most recent book is called *How to Defend Australia*, and it argues that in light of all the things we've been talking about, that Australia better work out how to survive in an Asia in which the US isn't the dominant power and China is, and Indian as well, of course, in its own way. And we therefore better work out how we can defend Australia independently from a major Asian power. I think we can do it, but it costs a lot of money.

MK: Yes, and we have to think more deeply about it than perhaps we are. Hugh White, thanks so much for being on *Democracy Sausage*.

Democracy Sausage

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A FORGOTTEN GENIUS

The world will never know what has happened, what a light has gone out

CHERYL MISAK
THE JOLLY SWAGMAN

Interview by Joe Walker
Illustration by LING

Joe Walker: On the 19th of January, 1930, Frank Plumpton Ramsey, a lecturer in mathematics at Cambridge University, died at the age of 26. 'The world will never know what has happened, what a light has gone out,' wrote Lytton Strachey, a key figure in the Bloomsbury set, which counted among its members the writer Virginia Wolfe and the Economist Maynard Keynes. Strachey's prediction turned out to be correct – Ramsey's name is little remembered except by cliques of mathematicians, economists or philosophers, whose entire sub-fields Ramsey birthed or recast.

Ramsey was the young undergraduate who bested the economic titan in a debate over the very nature of probability. The outcome of which was to ripple through economics in important ways, from subjective Bayesianism to rational expectations theory. But economics wasn't the only discipline on which Ramsey left his mark. No fewer than sixteen theories or innovations across mathematics, economics and philosophy bear his name. Like a burning meteor, Ramsey's life was as short-lived as it was stunning, so how did he revolutionise entire academic disciplines all before the age of 27? What was his personality and why did he die so young?

Helping me to answer these questions is my guest Cheryl Misak. Cheryl is a professor of philosophy at the University of Toronto, she received her Doctor of Philosophy from Oxford where she studied as a Rhodes Scholar, and she's the author of a brilliant biography published last year titled *Frank Ramsey – A Sheer Excess of Powers*. While we don't get into the guts of subjective expected utility theory – where Ramsey arguably left his greatest mark – I suggest reading Ramsey's essay 'Truth And Probability' and Cheryl's book for this. We sample some of the intellectual and personal highlights from Ramsey's astonishing life, from his Annus Mirabilis in 1929 to his explosive interactions with Ludwig Wittgenstein. I thoroughly enjoyed this conversation and I hope you enjoy it too.

Cheryl Misak, welcome to The Jolly Swagman podcast.

Cheryl Misak: Thanks for having me.

JW: Cheryl, I wanted to say congratulations and well done on giving Frank the biography he deserved. How did you come to write the book?

CM: I had written a book, or I was working on a book called *Cambridge Pragmatism*, and Ramsey was the philosophical hero of that book. It was a straight-up philosophy book. And people just started to tell me that since I was working in the archives and I was writing so much about Ramsey, that this biography needed to be written. And actually, Amartya Sen convinced me over lunch at Trinity College Cambridge one day, 'Just do it,' he said. I said, 'Okay, I'll do it.'

JW: Because there was no comprehensive biography of Ramsey until yours, right?

CM: Well his sister, his younger sister Margaret Paul, had written what ended up being called, *A Sister's Memoir*, and that started off as a biography. There are a lot of biographical elements to it, but I think she didn't quite finish it and it's rough in some places. So yes, this is the first full intellectual biography.

JW: Frank was born on the 22nd of February, 1903, who were his parents and what was his family like?

CM: He came from a very interesting family, his father, Arthur, was a kind of jobby mathematician at Cambridge. He was a textbook writer, no great shakes but he was a mathematics don at Cambridge, so he was intellectual. His mother, much more interesting, was an Oxford-educated woman at a time when that was very rare, and she was a kind of social justice firebrand, interested in helping the poor, visiting the sick. She was a lefty, and her politics really were absorbed by her son Frank. The father was an angry, not very progressive man, and Frank definitely picked up his mother's politics, not his father's.

JW: At what stage was his journey apparent?

CM: It appears that it was apparent quite young, but the trouble is that parents will always amplify the glories of their children. But there are all sorts of stories of Frank when he was really quite young, learning how to read by watching the billboards as he was pushed in his pram at a very young age, and following politics at a very young age. Some of these incidents can be dated, because there was a general election and he was interested in who might win, and he was very young at the time. So, stories get told of his brilliance as a toddler, you have to take them with a grain of salt, but clearly we see the results. He did turn into a remarkable young man.

JW: Growing up in his household, what was the expectation for Frank's future and his career?

CM: I think the expectation was that he would become some kind of academic, and so he more than fulfilled those expectations.

JW: He arrives at Cambridge in 1920, probably the most intellectually exciting time in the university's history? Sort of like an all-star cast of philosophers and economists.

CM: I think that's exactly right. It was right after the First World War, so it was also an interesting time socially and politically in the history of Cambridge University. Frank arrives very young because he was so brilliant and he was pushed ahead in school. He was, throughout his school days, three years younger than all of his classmates. Then he graduates from Winchester College very young, and arrives in Cambridge already three years younger, and now he's in there with all the vets who are six, seven years older than he was. And I think this had some effect, certainly, on his social life. He was a very large boy ... still a boy then, and he arrived at Cambridge looking like he was as old as the others, but much, much younger, much less mature. He fell into step with them immediately intellectually, and in fact, exceeded his peers intellectually, but emotionally, he was still a boy.

JW: When you say large boy, he wasn't obese, he was very tall, and also just big-framed?

CM: He was big-framed, very tall. Towards the end of his life, he did get fat, so he did think of himself as a kind of fat man right at the end of his life. You can see from the pictures he gained a lot of weight. At the end of his life he was 26 years old, so it wasn't that he was at the age where one tends to put on the pounds, but he certainly did.

JW: I remember one photo of him on a walking holiday in the Alps. He's reclining on the grass and he's got a book in one hand, and obviously chowing down on a piece of food in the other. So, he dies on January the 19th, 1930, as you mentioned, he gets to live for 26 years. So, the twenties are really Frank's decade to shine, and I'd like to dip into a few of the intellectual highlights with you, and you cover many of them in the book. Frank going toe-to-toe with some of the intellectual giants of his age, and often coming off better. But the two I want to focus on, are Wittgenstein

> He was going through sometimes a very difficult book a day. So, he had read very widely, so he arrived at Cambridge very, very well-prepared, but mostly self-taught.

and John Maynard Keynes. I thought perhaps we could begin with Wittgenstein, because at the age of eighteen Frank is picked to translate Wittgenstein's *Tractatus* into English. Why did they pick Frank?

CM: Well, first off, it was very unclear whether this really difficult manuscript was even translatable. G.E. Moore, who was one of the most important philosophers of the era, declared it untranslatable. It was full of the new logic that Russell and Whitehead and Frege had pioneered, so it was unfamiliar to a lot of people for that reason. But the *Tractatus* was also written in a very punchy form as a series of numbered remarks, and people didn't know what to make of it. So, it was not clear that there was anyone who could translate it. Someone, my guess is it must have been [Bertrand] Russell who thought the undergraduate Frank Ramsey is the one who could do it. He knew the logic, he was a mathematic student, he was very interested in the issues, and indeed, he turned out to be a superb translator.

JW: To get to that point and to have an adequate understanding of philosophy and logic, what kind of books is Frank imbibing? He's only eighteen, what's he reading, what's he up to at Cambridge?

CM: In his last two years at Winchester College, Frank had an amazing reading list. A lot of books were given to him by a really quirky Cambridge don who was a family friend, Charles Kay Ogden. Frank had read Russell, a huge amount of mathematics, the foundations and philosophy of mathematics, he'd read widely in economics. He'd read lots of German mathematicians. His reading list, as I said at the end of his time at Winchester would have just felled anyone. He was going through sometimes a very difficult book a day. So, he had read very widely, so he arrived at Cambridge very, very well-prepared, but mostly self-taught. He found his studies at Winchester very easy, it came easily – top in most subjects, and he kind of breezed through school. So, he did a lot of self-education.

JW: Going back to the *Tractatus*, what was the core argument of Wittgenstein's *Tractatus*?

CM: At the heart of the *Tractatus* is what gets called the 'picture theory' of meaning. And the idea is that you can take our propositions, our meaningful propositions, and you can break them down into their simple elements. So, you can take a very simple proposition such as 'the cat is on the mat' and you break that down – you have a cat and a mat. And if the word cat links to an actual cat, and the word mat hooks onto an actual mat, then the proposition is true. There's an issue, even with that incredibly simple proposition, the cat is on the mat, what do you do with the words 'the', or 'is', or 'on'? What do they reach out to in the world and correspond to, or link to? So this was the general idea of the *Tractatus* – that a meaningful proposition is one that can be broken down to very simple elements, each of those elements corresponds to a simple object in the world. You can see how even with the cat is on the mat, there are problems. But there are big problems with propositions about what is right or wrong. What about a term like 'it's wrong to torture live cats'? You can see that the word cat latches onto cats in the world. The verb torture, it's hard to know what object that latches onto. But certainly 'it's wrong' doesn't latch onto some object in the world called wrongness. So, Wittgenstein said that these propositions of ethics were without sense, they were nonsense, but he made an exception for them and called them sort of higher nonsense. That the propositions of philosophy are literally meaningless gibberish, that they don't latch onto things in the world. And Wittgenstein was very hard about them – just nonsense, get rid of them. Except, he had this tricky problem in that he had just spent quite a few pages setting out propositions of philosophy and so by his own theory these were nonsense and he came up with what he thought was a clever solution to the problem. He said: 'My propositions that I've

just written down or uttered, must be thought of as a ladder. You climb up on top of the ladder, and then once you get on top and you look down and you see that all the philosophy is nonsense, you kick the ladder out from under you and you never utter another philosophical proposition.' And Ramsey had a very nice comeback to this solution of Wittgenstein's, he said: 'What we can't say, we can't say, and we can't whistle it either.' So, you can't get away with saying the propositions of ethics are nonsense but somehow higher – that's kind of like trying to whistle them. And then of the move about climbing the ladder and kicking it out from under you, Ramsey said: 'Look, that's just like the child at the breakfast table where the parents say, 'Say breakfast', and the child says, 'I can't' and the parents say, 'Can't what?' and the child says, 'I can't say breakfast.' Well, you've just said breakfast. Or Ramsey would say: 'Look, Ludwig, you just said all this philosophy, you can't now pretend that you haven't.'

JW: And the other subtext to the quip about, 'and you can't whistle it either', is that Wittgenstein was a very famous whistler.

CM: That's right. He used to walk around Cambridge whistling entire operas.

JW: Quite a strange character in many ways. Would it have been easy to be Wittgenstein's friend?

CM: No. The one commonality that all of Wittgenstein's friends and acquaintances had, is that they all thought it was very, very difficult to be his friend. He was really prickly, he was completely unforgiving of even small slights where the friend couldn't figure out what the slight was in the first place and then Wittgenstein would cut them dead. Actually, he cut Ramsey dead for a few years, because they had an argument about psychoanalysis and he just refused to speak to him until Wittgenstein returned to Cambridge in 1929, and Ramsey found a way back into the friendship.

JW: The two were meeting quite a lot to discuss philosophy and Wittgenstein would come a couple of times a week to Ramsey's house on Mortimer Road, and they'd have what Wittgenstein called wrangles in the third-floor study. What were they wrangling over?

CM: So, this was in the last year of Ramsey's life, 1929, when Wittgenstein returned to Cambridge. The personal dispute happened in 1925. But yes, in the last year of Ramsey's life, Wittgenstein was back in Cambridge and they would get together

> "it was only when I really leapt into his work that I thought and saw that actually Ramsey is probably one of the best, if not the best, pragmatists out there"

at least once a week and have these philosophical wrangles. Wittgenstein's friend and Ramsey's wife, Lettice, describes them as follows: Wittgenstein would come into the house, he'd go up to the third floor, he'd put his head in his hands and he'd mutter, 'Oh, I'm so stupid. This is impossible, nothing is right.' And eventually he would come round to discussing philosophy with Ramsey and then engage in a long monologue, not let Ramsey get a word in edgewise until finally he managed to break through the monologue, and then Ramsey would deliver what I think are really excellent criticisms of Wittgenstein's picture theory of meaning. One of the arguments in my book is that Ramsey really made Wittgenstein turn his back on the picture theory, and turn his back on the *Tractatus*, and become what we now think of as the later Wittgenstein.

JW: Can you elaborate a little further on the arguments that Ramsey put to Wittgenstein?

CM: Ramsey thought that quest for logical purity that you find in the *Tractatus*, and also in Russell's *Logical Atomism* and in the Vienna Circle's logical positivism, that this quest for purity, for certainty, to get the world exactly right was just completely misguided. Ramsey called himself a pragmatist. He was influenced by the work of Charles Sanders Peirce, the founder of American Pragmatism.

Ramsey thought you couldn't approach the concepts of truth and knowledge from this absolute historic objectiveness perspective. You had to think of truth and knowledge as human truth and human knowledge. The believer, or the inquirer, is not separable from the proposition that corresponds or fails to correspond to the world. Ramsey said, 'Look, what we have to do is think about human belief, and then ask ourselves what human beliefs are useful. What beliefs work, what beliefs get us what we want. What beliefs work in terms of helping us move around in the world and control experience. And that's what truth amounts to.'

JW: How much do you see that view as coming out of that post-war generation who were kind of turning their backs on the worldview that, in their eyes, had kind of led to the great war?

CM: Do you mean the logical pure view?

JW: The idea that the truth is what works.

CM: I think it's the other way around really. That you find in the 1920s and 1930s, a quest to control and to say what's really, really true and turn away from the kind of human subjectivity, political subjectivity that caused this world of uncertainty and this world of chaos. So, you find in the 1920s and thirties, as I said the Vienna Circle, people like [Rudolf] Carnap and [Otto] Neurath, really searching for an objective grounding for all of human knowledge. You can see that as a way of reacting against what they saw as this terrible war of opinion or ideology.

JW: To tie off this thread, Wittgenstein eventually comes around to Ramsey's view, how long does it take him?

CM: It's clear that he started to talk about meaning not being a picture of reality but as being what is useful to us, what works for us, what works in practice. He started talking in these ways in 1929 and throughout the early 1930s, and then really by 1940 he had become the Wittgenstein who thinks that practice is what is primary and meaning is use. This is what the later Wittgenstein is.

JW: The second tussle I'd love to speak with you about is Ramsey and Maynard Keynes. And the big debate between these two centres around Keynes' *Treatise on Probability*, published in 1921. What was the argument that Keynes set out, and then what did Ramsey think of it?

CM: So back to Wittgenstein for a minute. Wittgenstein started writing the *Tractatus* before the First World War. He'd come to Cambridge to work with Russell, and he wrote the *Tractatus* literally on the front – he was fighting for the Austrians. So, at the end of the First World War, he had this manuscript. You have to think of the *Tractatus* as starting before the war and finishing right after the war. Same thing with Keynes' *Treatise on Probability*. He'd started it before the war and it took him a long time to finish it, he was doing other things such as all of his really fantastic work during the war with the treasury. But in 1921, he produces his book, it's published, and like the *Tractatus* it is about a kind of logical purity. Keynes says that probability – the probability that A will happen if B happens – is a matter of the logical relations between propositions. It's an objective thing. It's measurable. And Ramsey, he was an undergraduate at the time, the same time he's taking on, or thinking through the *Tractatus*, he argues against Keynes' objectivist account of probability and says, 'Look, probability isn't a matter of the objective relations between propositions, there's no objective probability that my rug is blue if the cat is on the mat.' You can take any two completely unconnected propositions, and there won't be a probability relationship between them. But on Keynes' view, it seems that there has to be. He had many more objections, some of them very technical, but basically his worry was that probability isn't like that, probability is a matter again of what is reasonable to believe for human beings. So, Keynes also had a quest to justify inductive inference in his *Treatise on Probability*. So inductive inference is that you infer from the fact that every swan you've ever seen has been white, that the next swan you see will be white. You can see how this is related to probability. Ramsey said, 'Look, there's no objective justification of inductive inference.' You take the all swans are white conclusion, well it looked reasonable for a long time but then when people went to Australia they saw black swans and it turned out that their well-founded inductive inference turned out to be wrong. So, Ramsey said, 'Look, both probability and the justification of induction, are about human belief.' The justification for induction is that we have to rely on inductive inference. We literally can't even get out of our chair and leave the room, without relying on inductive inference. So, Ramsey says, 'Of course inductive inference is a reasonable human habit. You won't find its justification in some more objective manner, you just have to see that's it's a reasonable habit for human beings to have, and then you can ask all sorts of interesting questions

about what kinds of inferences we should make using this mode of argument.'

JW: I think Keynes says this after Ramsey dies in 1930 – but Keynes was very shaken, and indeed wrote very magnanimously, of Ramsey's challenge. But he also thought that it doesn't really get to the bottom of induction, to just say that it's a mental habit. To what extent do you think Ramsey really changed Keynes' mind on probability?

CM: So, I think that you're completely right, that those who seek a watertight justification for induction are never going to be happy with the idea that induction is justified or vindicated because it's a habit that we can't do without. There's always a quest for something more objective. You'll find the same thing with those who quest after a concept of truth that's more than the idea that a true belief is the best belief for human beings to have. Keynes was always hankering after something more watertight with respect to induction but he did see that Ramsey had successfully sunk his theory of probability. As Keynes' friend Clive Bell, who was actually living with Keynes when Keynes was writing the *Treatise on Probability* said: 'Ramsey pulled a stitch in Keynes' theory of probability, and caused all the stitches to run.' So caused the whole garment to fall apart. Keynes never came up with a better account of probability, but he was always a little bit unsatisfied with Ramsey's idea that probability is subjective degree of belief and measurable in terms of whether that belief works or not.

JW: What about you, Cheryl, are you unsatisfied with Ramsey's idea?

CM: No, I'm a complete Ramseyian, and in fact, I was before I started to work on Ramsey. So, my background is very much in American pragmatism. All of us who work on American pragmatism have known that Ramsey called himself a pragmatist and was influenced by Peirce. But it was only when I really leapt into his work that I thought and saw that actually Ramsey is probably one of the best, if not the best, pragmatists out there. So, I'm completely with him.

JW: And the flow-on consequences for economics are difficult to overstate, this obviously births expected utility theory and subjective Bayesianism. Do you think that in winning that argument, Ramsey has had an overall positive or negative impact on the economics profession?

CM: His impact on the economics profession is very interesting. As you point out, Ramsey figured out how to measure partial belief and really was the founder of expected utility theory, which underpins all of economics and most of social science as well. But he was really clear that you couldn't mathematise economics – that mathematics had a role to play in economics but it was a highly idealised role. He would say things like, 'Look, no one can really make their beliefs align with the probability calculus. No one is rational in the sense of being a perfect utility maximiser.' He founded the idea that rational belief is the maximisation of utility – well he didn't found it, but he showed how to measure partial belief so as to make the idea really work – but he was sceptical of it as a way of doing real-world economics. That said, most economists know of Ramsey because he wrote two papers in economics, and they were straight-up utility analysis and each of these two papers founded a sub-discipline of economics. One was on optimal taxation and the other was on optimal savings. If you go into any economics department as a graduate student one of the first things you'll learn about is Ramsey on these two important utility-maximisation calculations. He was brilliant at doing this utility analysis, but he was sceptical about them. He thought that they were only good for highly idealised agents and no one was perfect in the way that this method seemed to suggest. It was a very complicated relationship to modern economics.

JW: Last year I had Mervyn King, former Governor of the Bank of England on the podcast. He and John Kay published a book called *Radical Uncertainty.* The way they summarised the debate between Ramsey and Keynes was, as you know Cheryl, that Ramsey wins the debate by arguing that anyone who didn't attach a consistent set of subjective probabilities to all uncertain events would be vulnerable to a Dutch book – in other words, they'd lose money if they bet at those probabilities. But King and Kay think that that argument is nonsense because it's strange to say that the way people gamble gives us any insight into rational behaviour under uncertainty and, in reality, we shun randomness. We don't take bets at every possible turn; we observe that distinction between risk and uncertainty. From what you're saying, Ramsey also intuited that distinction and thought it was potentially inappropriate to apply his ideas in the way that the economics profession eventually applied them?

CM: Yes, that's exactly right. So, he set economics on this highly idealised, mathematised course, but he was sceptical about it. One of the things

that I uncovered when I was writing the biography is that while Ramsey was writing these two path-breaking papers in economics, he was running around Cambridge giving a talk called Mathematics and Economics, and arguing against the very conception that he was setting out in these papers. So, if you had met him in 1926, you would have encountered a very complex thinker. The general impressions of Ramsey these days is that he put forward these brilliant arguments about how rationality is consistent with respect to the probability calculus, and he put forward the subjective utility maximisation model, and he is responsible for the state of modern economics being so highly idealised and highly mathematised. But as I say, that wasn't Ramsey if you look at the papers he was running around Cambridge reading at the time. He was throwing a spanner in the works of the very machinery that he set up.

JW: There's another interaction between Keynes and Ramsey that I find very interesting. It's lesser known but I find it interesting because of what it says about each of the men respectively – it's a conversation they have about a paper that Ramsey writes, and their point of differences around discount rates. Do you recall that paper and the point of difference?

CM: This was a paper that Ramsey wrote on how much a nation should save for the future. In economics, in utility theory, there is an immediate problem about saving for future generations, and that is those future generations might not exist. There might be some nuclear catastrophe or world war that wipes them out, or some germ in the drinking water. So, it looks as if from a utility calculation point of view, we should discount the value of future generations because they might not exist. This is another way in which Ramsey was not the champion of utility theory that he's often taken to be. In that famous paper, it's called *The Mathematical Theory of Savings*, he says that it is ethically indefensible to discount the wellbeing of future generations. He's throwing in a point about ethics or justice into the utility calculation, and he refuses to discount them.

JW: What does it mean to be a genius, and does Ramsey qualify?

CM: I personally don't really like the term 'genius' – it gets thrown around a lot. But if we're going to think that some people are geniuses, then Ramsey certainly counts. He made real indelible marks on – depending how you count – four or five discreet disciplines: philosophy, economics, the foundations of mathematics, probability theory. He had an amazing mind and when you think he died just shy of his 27th birthday, it's very hard not to shake your head and say, 'Oh my God, he was a genius.' If anyone was a genius, he counts.

JW: One of the striking things about some of his most lasting contributions, his strokes of genius if you will, is that they were almost asides, they weren't the main game for him – that paper on optimal taxation for example. Is there anything in that we can learn?

CM: Well, here's the most alarming, if you like, example of this phenomenon that you just mentioned – that a lot of Ramsey's most famous innovations and ideas were almost asides. He's writing a paper on the foundations of mathematics, trying to solve Hilbert's decision problem, 1928. He does a very kind of philosophical, foundational paper, but decides that he needs to prove a lemma. So, he literally steps aside from the main argument, which was about the philosophy of mathematics, and he writes eight pages of proof. And those eight pages are now Ramsey Theory in an incredibly fruitful domain of pure mathematics. Again, you go to any maths department and you'll find a couple of Ramsey theorists – and it literally was an aside. He stepped away from his primary philosophical argument to prove this. So, this is a feature of his thought. In philosophy, there are a whole bunch of things named after him: Ramsey sentences, Ramsey conditionalisation. Ramsey conditionalisation – I won't go into it – is literally a footnote in a draft of the paper that he wrote. We now have famous philosophers spending decades working on this footnote of Ramsey and showing how it's really fruitful.

The same thing in economics, he writes these two papers. Keynes, I almost want to say bullied him into writing them. There's one very charming letter he writes to Keynes and he says, 'Okay, here's the draft of this paper. I really want to finish it, because it's distracting me from the more fundamental philosophical questions that obsess me at the moment.' So, he writes these two papers and they're distracting him from his main business, and each of these papers was included in a volume of the Economic Journal, which was Keynes' journal, put together for their 125th anniversary. So, 125 years, one of the most important journals of economics, they choose their thirteen greatest hits and both of Ramsey's papers are included and the editors had to explain why they included two papers by one person. I'm sure there were lots of disappointed economists out there, or fans of

various economists who were disappointed not to have their person in this volume. They explained it by saying, 'Look, each of these papers sparked a branch of economics, we had to include them.' And again, they were kind of asides for Ramsey.

JW: Should we infer from that phenomenon, that many of his strokes of genius were asides, that he was an intuitive genius rather than a plodder?

CM: He was much more an intuitive intellect than a plodder. One frustrating thing about reading Ramsey in philosophy, in economics, in mathematics, is that everyone says that he never slowed down to fill in the details of his proof, or to fill in the details of his argument so that we mere mortals could follow nice and easily. There's one paper where he says, much to the eye rolls of subsequent generations, 'Oh, it's too boring to write out the details of this proof.' And 30 years later, someone finally figures it out.

JW: Right. So, in that sense, he must have been a poor teacher?

CM: He surprisingly was not a poor teacher. His students absolutely loved him and they say that not only was he warm and friendly and informal – and said call me Frank which was not the norm in 1920s Cambridge – but that he really was patient with them, took time to go through proofs with them. He would say of the applied problems that, 'Oh, I'm useless at applied maths, I know nothing,' and then he would solve the problem by going back to first principles, going back to Newton and working it out. His students absolutely loved him.

JW: Which I suppose speaks to his character. He was famously very genial. And what were his personal relationships like during this period of the mid to late 1920s?

CM: As I said at the outset, he was a very young man when he arrived in Cambridge, less mature than his fellow students who were war vets. He was very messed up about his relations with women when he was an undergraduate. This was after the First World War, roaring twenties, everyone was having fun, everyone was having a lot of sex, and he wasn't. So, he was paralysed by his relations with women. A lot of his closest friends were, at the time, what they called homosexual. Ramsey happened to be interested in women but he was paralysed. He developed, towards the end of his undergraduate degree, a crush on a married woman who was part of that fast set. It wasn't that her being married was an obstacle, because there were a lot of affairs being conducted by this woman and their whole group of friends, but she wasn't interested in having an affair with this young man. So, he took himself off to Vienna to be psychoanalysed and he was cured during this stay in Vienna, it was in 1924. Although he probably was mostly cured by going off to see a professional woman right after he arrived, and she kind of got him through his hurdles. When he returned to Cambridge he immediately contacted a woman that he had been interested in before he left by the name Lettice Baker, who he then very quickly married because they were involved in a relationship and you could lose your job if you were found to be having sex when you were not married. He was a very young brand-new mathematics don at Kings College Cambridge and he was very worried about being fired if anyone found out that he was in this relationship. So, they solved this problem by getting married. But his wife Lettice, very much part of Bloomsbury, she was very clear that if they were going to get married, it had to be an open relationship. And Frank was perfectly happy about this, this was his set as well, he was part of the Apostles – a secret Cambridge discussion group which also was infamous for the number of affairs conducted within it. And he found another great love. So, he remained married and completely devoted to Lettice and their two daughters but very quickly he found a second love, a woman named Elizabeth Dembe who was a progressive civil servant at the forefront of the housing movement for reforming housing for the poor. They formed a kind of happy open trio, as Lettice called it, and he had a very happy personal life.

JW: But his sex life with Lettice Baker wilted?

CM: No, no. They remained completely engaged and devoted to each other, but in a principled open marriage.

JW: Got it. Now, was Frank a member of Bloomsbury while he was an undergraduate?

CM: He certainly was on the periphery of Bloomsbury. Virginia Wolfe mentions him in one of her diaries, she met him probably at a lunch party of Keynes' when he was an undergraduate. He was friends with lots of people who were in the Bloomsbury set, Lytton Strachey for instance. But certainly after he returned from Vienna and after he married Lettice, he was much more at the centre of Bloomsbury because Lettice was.

JW: What I don't understand is – he was a genius,

he was genial, he was tall, he wasn't deformed in any obvious way and he belonged at least to the periphery of the Bloomsbury set, which even by the standards of today was remarkably promiscuous. So, I don't understand why he struggled with women to such an extent that he had to get psychoanalysed for six months in Vienna.

CM: Well, when you say he was tall and obviously not deformed – he was an awkward kid. Shy. Bullied at Winchester. Not at all confident of his social skills. So, it's completely unsurprising that he would've found matters of the heart difficult.

JW: Got it. Talk me through the closing months and days of Frank's life. How did he die?

CM: 1929, the most productive year of his life. Hence one has to think one of the most productive intellectual years of anyone's life – he just did an unbelievable amount of superb work. So, things were going brilliantly for him. He's got two little girls who he's completely devoted to. He's got a wife. He's got his second great love. Everything is coming together for him. He's writing a book on truth and probability. And he gets jaundice. He catches a chill after a feast at Kings College, and gets jaundice. There are all sorts of letters from people who knew him, who visited him during this time. They say, 'Frank's getting yellower and yellower, he doesn't look well at all.' Lettice herself got some kind of flu and Frank moved back to his father's house to give her a break from nursing him. So, it was about two or three weeks of not being well and he actually raised the alarm. He wrote to Lettice and said: 'This is not going well, can you contact your uncle who's a surgeon at Guys Hospital in London and ask him what he knows about jaundice?' So, the uncle takes a look at Frank, comes to see him, and by ambulance he was sent to Guys Hospital in London where they operated to see if he had some blockage. There was no blockage. And he died the next day. Wittgenstein was at his bedside as was his wife Lettice. It's not completely clear from the death certificate just what the cause of death was. With some help of two really smart medical professionals, I've come up with a hypothesis based on all the letters and the descriptions of what was happening to him. One of them said, 'This looks to me like leptospirosis, or Weil's disease', because when they operated on Frank they found not just his liver but his kidneys were a frightful mess. And leptospirosis is a bacterial infection you get from swimming in a river where the faeces of animals have infiltrated. And both these medics said, 'Yeah, it makes sense, it looks like leptospirosis.

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There is leptospirosis in the River Cam, Frank did like swimming in the river.' But one of them said to me, 'Look, given the incubation period here, he would have had to be swimming in late October.' But now you can go online and Google: weather Cambridge, October 1929, and it turns out that it was an unusually warm end of October. So, it's not inconceivable that he could've been swimming at the end of October in the river and this might well have been what killed him.

JW: What's the reaction to his death among his family, among his friends, among the Cambridge community?

CM: They were absolutely gutted. Wittgenstein was so gutted that he, in a fairly typical fashion, behaved really badly. He wrote a letter – the letter doesn't exist anymore, but there are reports of it in Frank's family. Wittgenstein wrote a letter to Frank's father saying, 'You killed your son, you didn't look after him properly when he was ill.' Who writes that kind of letter to a father grieving his son's death? But I think it was an expression of

just how destroyed Wittgenstein felt about Frank's death. Keynes wrote to his wife, Lydia Lopokova, from the Kings College senior common room, a week before Ramsey died, and he said: 'Things are so calm in Cambridge, it's the holiday, everything's lovely,' and then the next letter he wrote to her was just devastating: 'Frank Ramsey has died.' Then Keynes actually got on the telephone and he called everyone and the reports again are that he was massively upset. It hit Cambridge like a sledgehammer.

JW: Ramsey's friend, Braithwaite, wrote in his obituary of Ramsey that Ramsey would've found the questions about the meaning or purpose of life nonsense because that's what his philosophy claimed. Would Ramsey have thought questions about the meaning of life were silly?

CM: No. I think Braithwaite has it wrong. Braithwaite actually got most things about Ramsey wrong. It turns out that they weren't talking very much, Braithwaite and Ramsey, in the last year of Ramsey's life. I surmised in the book that the reason Braithwaite seemed not to know anything about what Ramsey was thinking in 1929 was because Wittgenstein came back and all the philosophical air was taken up by Wittgenstein. And Wittgenstein was very sniffy about Braithwaite, he didn't think Braithwaite was up to it. So I surmised that perhaps Wittgenstein just edged Braithwaite out. Since the book was published, I've discovered something. Someone emailed me with a gem and I'm not going to tell you what it is because it would be spoiler. I'm right now working – I'm just about finished, making corrections to typos and the like – for a paperback edition and I have a bit of a revelation about Braithwaite that I'm going to drop in the paperback. But to the meaning of life, Braithwaite's wrong, Ramsey did think that you could say things about the meaning of life.

There's this wonderful paper that he read in Cambridge in 1925, and I end the book this way. He says that his perspective on the meaning of life isn't focused on the fact that the stars are massive and far away and eventually the universe is going to go up in flames or cool and die. His focus, his perspective, is on the human and on what works best for human beings. He was arguing against Wittgenstein who was very gloomy, he was a depressive. And Russell who was focused on the fact that the universe is so vast and will eventually burn up, so what's the meaning of life of a human being in the context of this vast universe. So, Ramsey says, 'Look, you can't focus on the vastness of the universe, you have to focus on human beings, what they're going through, what is good for them here and now.' And he said, 'I'm optimistic, and that's the way to get through life in a way that is meaningful. Not just to get through it in some plodding way. But that's the meaning of life – to just focus on making things better for human beings, and being optimistic that you can do so.' So, he had, I think, some very interesting and sensible things to say about the meaning of life. And his life was full of meaning. He said in his paper, 'I find the universe a wonderful place,' and he had all sorts of reasons to think it was wonderful. He had everything going for him, he would have continued to make remarkable progress across this vast range of disciplines had he lived, but as we know, his life was cut short rather brutally.

JW: You're a philosopher and Ramsey was a giant in the field. He was also a pragmatist, so obviously you already knew a lot about him before you started the period of researching for the book. But during that period of intense research where you're learning a lot more about Ramsey's work and his life, did anything you learned in that period change the way you approach either your philosophy or your work? Did you learn anything about how to emulate Ramsey's levels of productivity?

CM: A number of people have asked how Ramsey managed to do so much in such a short life, that also was so rich and full of personal relations. I didn't have to learn this because I was already doing this. But Ramsey, like Bertrand Russell, was very principled about how he worked. Every day, every morning, he started off writing, even on holiday, probably on Christmas Day. Then after a couple of hours, maybe three, he stopped writing and he went for a walk. Then he took pupils, started teaching, did administration. But every single day, he got his writing in first thing. That is a pretty tried and true methodology for a lot of people, a lot of people who manage to get a lot done. So that's how he got all his work done. I had already done that but I clearly learned so much by just diving into one life and one incredibly fruitful intellectual period, that it has actually changed the way I do philosophy now.

JW: Fantastic. Just to come back to those writing habits, do you know what time Ramsey would rise and begin writing?

CM: It's not written down, he wasn't a very good diary keeper. But one gets the sense from how he talks about his days, that he probably started around 9.00 or 9.30 am, broke for lunch at 1 pm, and then the rest of the day was free for all the other things he had on the go.

JW: And when you say writing, is he just writing in a journal, and is he also reading or is he purely writing?

CM: I think that early morning period was, for Ramsey, a writing period. Reading happened in the afternoon. He didn't write in a journal. Wittgenstein did all his philosophy in his journal. Ramsey did all his philosophy, and economics and mathematics, and probability theory, by either writing drafts of papers or writing notes to himself. We have much of this material still intact, it's at the Archive of Scientific Philosophy at the University of Pittsburgh. They bought Ramsey's papers. It's absolutely thrilling to go and be with the original documents. His handwriting was appalling when he was a schoolboy, so one of his school teachers at Winchester said to him, 'Look, don't even try cursive, stick to printing.' So, you have this almost childish printing even if you've got the most amazing proofs and the most sophisticated thoughts being set out in this very childish printing. We can go through these materials and see how Ramsey's mind was working, because he just jotted things down. They are perfectly legible, and you can see all those drafts of his papers. Unfortunately, very little was published and almost everything is in this unfinished draft form. So there's a lot of filling in that the reader of Ramsey has to do.

JW: When you write, do you write with a pen or on a computer?

CM: I write on a computer and I also tend to write drafts right away, not so much notebooks. But I'm not emulating Ramsey, I always did this. One very interesting thing is to take a look at Braithwaite's archives in Cambridge and you see how Braithwaite also starts off with pencil and paper in the 1920s and then he moves to kind of photostat and photo copying. Then, by the end of Braithwaite's life, he's on the computer and you have computer printouts. When you think about that, they're both born in the early 1900s and Braithwaite – Ramsey's exact contemporary – lived to write on a computer. Yet Ramsey dies in 1930 which seems like a different era altogether.

JW: I sometimes think it's pointless to think in counterfactuals, but what do you think Frank would've gone on to do or achieve, had he not died so young?

CM: Interestingly, Ramsey had a view of how counterfactuals could be, if not true, then rational. His theory of counterfactuals – and that's the footnote that I mentioned earlier – says, 'Look, if you take your stock of beliefs and add the counterfactual, had Ramsey lived then, he would have done such and such.' You can see how your beliefs might change by adding that counter to fact, and to say: 'Had Ramsey lived, then such and such.' And some counterfactuals are not going to be reasonable: had Ramsey lived he would have been a brilliant billiards player. Well, that's not a reasonable counterfactual because he was awkward and he was never going to be a brilliant billiards player. But I think we can say, had Ramsey lived he would've finished the book he was writing, it would've made a huge impact on philosophy – that was very much a philosophy book. As it was, the drafts that he was writing were only published in 1991, I think. So he dies in 1930 and only in 1991 does the world kind of get a glimmer of what he was trying to set out in this book and they're very much drafts unfortunately. But he would've finished that, there's no reason to think that he wouldn't have continued to make huge advances in economics and mathematics and probability theory. So, the world lost, I think, one of its most sparkling minds ever.

The Jolly Swagman

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ON NEWTON, SCIENTIFIC PROGRESS AND THE HIDDEN WOMEN OF SCIENCE

Science began in the home

PATRICIA FARA
CONVERSATIONS WITH TYLER

Interview by Tyler Cowen
Illustration by Vaughan Mossop

Tyler Cowen: Hello, everyone, and welcome back to *Conversations with Tyler*. I'm very happy to be here today with Patricia Fara. I've read and enjoyed all of her books. She is an historian of science at Cambridge University. Her next forthcoming book is called *Life after Gravity: Isaac Newton's London Career*. She's also well known for her writings on women in science, and she appears often on BBC, typically on topics related to science. Patricia, welcome.

Patricia Fara: Well, thank you very much for inviting me. I'm very glad to be on the show.

TC: Let's start with Isaac Newton. How was it that he died rich?

PF: He earned his money several different ways. When he went down to London, he had far more than he ever did as a Cambridge professor because he was running the London. He got a fat salary for that. He also got a premium, a reward for every single gold coin that was minted.

He invested in global trading companies like the East India Company, for example, that were sending guns and textiles out to Africa and then shipping enslaved peoples over to the Americas.

He also invested in other stock market companies. There was this famous occasion – it's the anniversary this year of what's called the South Sea Bubble – when he invested a small fortune in a new company, the South Sea Company, and he watched the levels rise, and he stayed in there, and he sold when the stocks had gone up. He made a small fortune, but *then* he made the classic beginner's error. He invested again at a higher price, and he watched the value crash.

So, he did lose several million in today's currency on that particular venture. But in general, when he died, he was an extremely rich man, and you can tell that – the inventory of his possessions runs to a vellum scroll that's 17 feet long.

TC: What was it that he collected so obsessively to have all these possessions?

PF: Well, a lot of it was equipment for catering. He's got this reputation for being very antisocial, but he had hundreds of plates and sets of cutlery and things like that. He also had that ultimate Georgian luxury: he owned two silver chamber pots.

He spent money on having a good number of portraits of himself painted that he would send out to other people as bribes or as rewards for their allegiance to him. He had furniture. He had decorations. He had a carriage. He had a sedan chair tucked in the stables. He had lots of servants.

TC: Now, as you know, Newton spends what, over 30 years working at the Mint? What's your model of why he did this? How much was it for income? Did he think he was done with major contributions, say, to physics and optics? How do you think about that decision in his life?

PF: I think he was very frustrated with being at Cambridge. He applied for several positions there, which he didn't get. In theological terms, he was rather at odds with everybody else at Cambridge because he was a very, very devout believer in God, but he didn't adhere to the traditional, to the orthodox Anglican theological belief in the Trinity, so that was difficult for him. He'd been trying to leave Cambridge for some time, and he had a very close friend, Charles Montagu, the Earl of Halifax, who was Chancellor of the Exchequer, a very influential man. He managed to find Newton this very prestigious job at the Mint that paid a good salary. The minute Newton heard about it, he downed tools at Cambridge, rushed down to London, and he moved and started a new life within a few months.

TC: Why was the Mint located next to the weapons ordnance in London?

PF: The Mint was traditionally located right inside the Tower of London. If you go to London now as a tourist, in normal times, when you go, you can be shown around the Mint. It's squashed into the inner and outer walls of the fortifications of the Tower right on the edge of the river. It's in an ideal location for all the gold coming in from Africa, and it was close to Westminster and Royalty and Parliament, so that was also a convenient location. Newton didn't like being physically in the Mint. He was given a house that had walls all around the garden, so you couldn't see anything. The worst thing was that it was very noisy. At that time, there was a zoo in the Tower, so he was kept awake all night by the roaring of the lions and the other animals in the zoo. There was also the clanking of all the Mint machinery. Because it was a tower, it was a military fortification. There were many soldiers there, and they were riding around on horses and doing all the stuff that soldiers do. After a few months, he left the town because he really didn't like living there. He worked there one day a week, but he did most of his work at home.

TC: What do you think about Newton's basic idea of silver recoinage – bring in all the silver coins, melt them down, reissue at a lower value? Was he right about that or not? Or do you side with John Locke?

PF: He actually didn't want to do that. There was a big consultation when he was still in Cambridge. The trouble was that coins in those days were made of valuable metal. If you've got a silver coin that was worth a pound, the silver in it was itself worth a pound in money. It's not like dollars or cents now, where it's a bit of paper. A bit of paper, a dollar bill, is in itself absolutely worthless. What criminals did was to file bits off the edge of these silver coins. They had lots of little silver shavings, which they could melt down and turn into silver and get rich that way, but that meant the currency, the coins, were getting lower and lower and lower in value. Newton's first job when he got to the Mint was to call in all the currency. Every single coin was meant to go to the Mint. Then he melted it all down, and he started again with new coins that had milled edges like modern coins do, so they're much, much more difficult to scrape or to forge, and then he reissued those. But quite a lot of things went wrong, and like all those stories, it was a tale of the rich got richer and the poor got poorer.

TC: But why think that melting down the coins and reissuing them will solve the problem? Don't you just re-enact the same scenario each time all over again?

PF: No, you don't because he changed the way the coins were made. He modernised it. He kept the dies. The moulds for making the coins were highly secret, and that made the coins much more difficult to forge. Also, the fact that all the coins have this milled edge – the little ridges around the rim of the coin – meant that you couldn't shave a bit off because it would be noticeable. Nobody in a shop would accept that coin because they'd immediately see that it wasn't worth its full value.

TC: Newton, as you know, was very interested in alchemy. Was this just craziness on his part? Or is there a way to read him that this is early nanotechnology, and he was ahead of his time? Or was he just out to lunch?

> You can't draw a hard line between alchemy that's rubbish and science that's legitimate and that science is right.

PF: No, he was definitely not out to lunch. Alchemy was a very serious pursuit. It's had a very bad press. It's always associated with people who are cranks or magicians. If you think about the classic example, alchemy is turning lead into gold. That's changing something that is base, that's low, that's valueless, that's dirty – changing it into something very valuable. When alchemists looked out on the world, they could see everything around them changing. For example, acorns were growing into trees, or babies were growing into adults, or wood was buried – forest was turning into coal. This idea of change seemed to make a lot of sense to them. The idea was that just as a base metal, lead, can be transmuted into gold, if you pray, you can cleanse your own soul and get nearer to God. It was that sort of spiritual alchemy that Newton believed in, but he pursued a huge amount of alchemical research.

He was very expert in alchemy, and many of his alchemical beliefs actually got carried over into his natural philosophy. You can't draw a hard line between alchemy that's rubbish and science that's legitimate and that science is right. It's not like that at all. You have this very difficult problem of explaining how it is that gravity operates because if you think about it, it's something we still really haven't resolved. If you've got two lumps of matter, like the earth and the moon, made of inert material, how is it that, somehow, they can attract each other, that they've got an innate power? That's the sort of question that science has never really been able to answer. He drew on his alchemical theories to provide different mechanisms to justify and to explain his theory of universal gravity. In many people's view of the world, God created the universe, and then God disappeared and left it to run itself like a clock. Newton's idea was that God was constantly present throughout the universe. He used the word 'immanent.' He's immanent throughout the universe. When a comet comes in – comets, in his view, are sent by God, and they've got fiery tails that have got vegetative – a live matter in them that reanimates the universe. There's a very vibrant, vital, living view of the universe. It was one that's absent from modern physics and one that he developed from his own chemical research.

TC: Now, Newton's notion of the ether in his *Opticks* – was that crazy? Was that a precursor of dark matter? Is ether God? What's your take on that?

PF: In the *Opticks,* as the name suggests, it's a book about optics. At the end, he added thirty-one questions or 'queries,' as he called them. That was a really good opportunity for him to float some really outlandish ideas, and he simply put a question mark at the end. Then nobody could accuse him of actually believing that. He said, 'Oh, I was just speculating.' In the queries of the *Opticks*, he formulated two different views of gravity. One is the one that there's some sort of invisible power that stretches out through empty space and attracts the sun to the moon or the apple to the ground. The other version is that there's something called an ether and that the ether is made up of tiny, tiny, tiny invisible particles that you can't weigh. You can't see them. You can't smell them, but they pervade everywhere, and then gravity can travel through that ether just like sound is transmitted through air or through water. That basic model sounds really weird now, but throughout the nineteenth century, regular scientists, very eminent, prominent scientists all believed in ether, and they developed models of it. It only finally disappeared in 1905 when Albert Einstein introduced his theory of relativity, and one of his aims in doing that was to dispense with the ether, to say it's a hypothetical substance, and it's no longer needed.

TC: Did Newton ever have sex?

PF: When he died, he told his doctor that he was a virgin, but of course, that can't be proved. He certainly had a very close, emotional relationship with at least one young man, but the concept of homosexuality is a nineteenth-century one. He might well have had a very, very intense, emotional relationship with young men without actually having had sexual relationships with them.

TC: Why was Newton so productive during the

London plague? Was he self-isolated? Was he sending letters back and forth earlier in his career, before your book starts?

PF: Oh, yes–

TC: It's in your *other* book about Newton.

PF: That's right. During the pandemic – which we might now call it, except it wasn't caused by a virus – yes, he retreated to his country cottage, which now is about an hour by car away from Cambridge. That's when he supposedly sat beneath a tree in the garden and watched an apple fall to the ground and conceived the theory of gravity. We can never know whether that happened, but it was a story that he only started telling about five years before he died, and he did tell it to four separate people. It sounds as though he was creating a mythological version of scientific creativity. The story was unknown for decades. It was only, really, in the nineteenth century that the story of the apple tree came back. Now, of course, it's as though he were a secular saint. He has an attribute. Like Saint Catherine has a wheel, well, Isaac Newton has his apple.

TC: Looking to the history of science more broadly, investigators have known about static electricity for a long, long time – since the ancient Greeks. If it wasn't Benjamin Franklin, who is actually the researcher who deserves credit for discovering what you might call the full power of electricity? How does that happen exactly?

PF: I think the person who deserves most credit for identifying it was Alessandro Volta, the Italian researcher. Because you're right – people have been able to generate static electricity for a long while. There was a big argument. Is the electricity generated by a machine – by human beings – is that the same sort of electricity as exists inside our bodies? What Volta was able to do – he created a thing called a pile, which was a precursor of a modern battery. He managed to produce a current of electricity, and he showed that it's the same as the electricity that's in our bodies. So, I think Alessandro Volta is the most important person in the creation of *current* electricity as opposed to static electricity.

TC: So many factors seem to lie behind the origins of the Scientific Revolution in England, but also in Europe more generally. Which do you think is the underrated or under-discussed cause of the Scientific Revolution?

> "I think, more and more, we have to look at what was happening in other parts of the world and recognise that not everything originated with Europe."

PF: I personally don't think there was a Scientific Revolution. I think it's a very inappropriate label. If you meet historians of science on the European continent, it's something they haven't really heard of. It was a term that was really introduced during the twentieth century. It became particularly important after the Second World War when science was compared with religion. The rather idealistic view was that there could be a universal language of science. I suppose Isaac Newton's *Principia* would be the Bible of the new science, and that could spread internationally. It went along with the very pacifist aim to reduce international tensions. This concept – the label, the Scientific Revolution – became really important during the second half of the twentieth century. Since then, a lot of historians have strongly challenged it. I personally don't think it's a very good label.

TC: But isn't there something to the notion that, say, Boyle, Cavendish and Hooke – what they did, which was quite significant, typically multifaceted – it couldn't have happened in the year 1500, but it could have happened and, indeed, it did happen in the years they lived in. There was additional amounts of wealth. There was some institutional support for science. There were royal societies. There were the beginnings of professionalisation. Why *shouldn't* we see that as a discrete break in the history of science?

PF: Because you've just given precisely all the reasons why I think it was a continuous effect.

And you're quite right – it couldn't have happened in 1500 because the other social factors weren't in place. But the name of a *revolution* suggests that something changes precipitately and very quickly. It's quite relevant to remember that the word 'scientist' wasn't even invented until the 1830s. In this country, it didn't become common until the late nineteenth, early twentieth century. Science, as we know it, didn't exist in the sixteenth, seventeenth century, which is where the Scientific Revolution is usually placed. The term 'Scientific Revolution' implies that you go from a non-scientific state to a very scientific sort of position, and that actually didn't happen. There was a long process of continuity. You could see the eighteenth century as being extremely important for developing the idea of careers outside the Church and the law, which were the traditional careers – developing different sorts of careers and making science into a professional activity, and *that's* what happened in the nineteenth century.

TC: Now, you've written a book on 4,000 years of the history of science. How well do you feel we understand the scientific understanding of the ancient world?

PF: I look back on that book – I think it came out about 15 years ago. When I wrote it, I was trying extremely hard to get away from a Eurocentric approach and to write an international history of science. Since then, history of science has become still more global and international. We do know a lot about the ancient world. Unfortunately, we still don't take sufficient account of other cultures outside Greece and Rome as being particularly important. I think, more and more, we have to look at what was happening in other parts of the world and recognise that not everything originated with Europe.

TC: If we look, say, at the breeding and origins of corn, which happens in central Mexico by a group of people now misleadingly called the Aztecs, how much do we understand about how that happened? How much do we know about their science? Do we think they just got lucky? If we knew everything, how many big surprises would there be? Because it's a remarkable achievement, right? They take a weed, and they make it into a foodstuff that later fuels the Industrial Revolution.

PF: Yes, but you could say the same with the Egyptians. They cultivated a weed and turned it into something that we used to print books on and used for transmitting knowledge. A lot of ancient cultures, ancient civilisations had very advanced levels of knowledge, but they weren't directing it to what we would call science. They wanted to live better. They wanted to be healthier. They wanted to grow more crops. They wanted to get from one place to another. They wanted to become rich. To do all those things, they developed techniques that later got taken over and were adapted and now are seen as being part of science.

TC: Some number of years ago, researchers discovered what's called the Antikythera mechanism from the ancient world. It seems to be a kind of computational device. Do we need to revise everything we had thought about the ancients with regard to science? Or is this just a marginal change in our understanding of what they were able to do? What else haven't we discovered from the ancient world?

PF: The Antikythera device, which was this ancient mechanical clock from the Greek era, which was discovered in the early twentieth century, is an absolutely magnificent example of the sort of thing that I'm talking about because, according to the standard historical works, such an elaborate set of gears and such an intricate understanding of what's going on in the heavens, but particularly the mechanical work that was involved, couldn't possibly have happened before the Middle Ages. Here, there is this clock that's long, long preceding the Middle Ages. The fact that one has been found which is so technically proficient suggests, or really confirms, that there must have been many, many others as well. What historians have started doing is rereading ancient texts and reinterpreting different references to pick up indications that this sort of technology did exist long before we thought it ever did.

TC: What should undergraduate science students know about the history of science?

PF: Oh, I would like to make history of science compulsory for all science students. One thing that they learn – they obviously learn about debates of the past. A lot of the ethical considerations involved in previous debates are still very, very relevant now, so that's very useful for them. Another reason for them to learn history of science is that if they're scientists, they're taught how to carry out calculations and how to advance from a certain base of knowledge and to produce new knowledge. What historians of science do is argue and interpret and find ways of expressing their own points of view. We teach science students how to write essays, how to present their own position. That's the skill that everybody is going to need. If

you're writing a grant application, you need to be able to present your ideas clearly. The other reason why I think every science student should learn the history of science is that the students I teach absolutely love it because they have an opportunity to argue and to express their own ideas and think for themselves. It's something that students really, really enjoy as well as learning a lot from.

TC: How valuable is Thomas Kuhn for understanding the history of science?

PF: Thomas Kuhn introduced – he didn't introduce it himself – he developed earlier ideas, and it has come to represent this idea that science doesn't proceed in a straight line(go up the mountain of truth) – that it proceeds through revolutions so that people get hold of a fixed idea. For example, they *know* in their absolute hearts that the sun goes around the earth, but then more and more evidence comes up that really argues against that belief, and that becomes a sort of a crisis when the evidence overwhelms the previous belief. You flip into a new paradigm and go through a different belief that the earth goes around the sun. An enormous number of holes have been picked in Thomas Kuhn's book, *The Structure of Scientific Revolutions.* I think Thomas Kuhn himself would agree with many of those. On the other hand, it was a key book in the way that it influenced people and persuaded them to think about the interaction between science and society in a different way. So, it's been enormously influential, although I don't really agree with all that much of it.

TC: What is it from philosophy of science that you find most valuable in understanding the *history* of science, if not Kuhn?

PF: I suppose discussions about the nature of truth and objectivity and whether you can ever attain truth. And what does that mean? Yes, the philosophical relationships between an observation and a fact, that the theory is much more complicated than most people are led to believe.

TC: In the history of science, is the abacus overrated or underrated in its importance?

PF: I don't think it *is* rated particularly highly in history. It's a good example of something that wasn't invented for scientific purposes but was developed by merchants when they're trading. You need to add up the bills and work out – I don't know – how much 6 metres of cloth at $10 a metre is going to cost. It's a good example of an instrument that was *not* developed for scientific reasons but for other reasons – in this instance, trading and marketing.

TC: Why is Queen Christina of Sweden an important figure for the history of science?

PF: Queen Christina, well, she's important because she was a very, very intelligent woman, and she was lucky enough to be rich, so she could study science. She collected an intellectual court around her. She attracted René Descartes, the French philosopher, to her court to come and be her tutor. She learned maths and physics from Descartes, one of Europe's leading philosophers at the time. But it's quite cold in Sweden, unlike France. He got very chilled, and he caught some illness, and he died while he was in Sweden with her. That's what she's best known for, but she was also revered in her own age as Athena or as Minerva, the goddess of wisdom. That became a very common emblem. There are various busts and pictures of Queen Christina dressed like Minerva, wearing a helmet – because she was also the goddess of war – with an owl on the top. I think Queen Christina was also important for launching a tradition of learned numbers of women who were capable of understanding scientific ideas.

TC: Which is, to you, the most interesting city in Northern England?

PF: Well, if I'm going to extend Northern England to the south a bit, to the Midlands, I would say Lichfield because that's where Erasmus Darwin lived, who was Charles Darwin's grandfather. Lichfield is near Birmingham. In the eighteenth century, Birmingham was quite small and insignificant, and Lichfield was very important. That's where Darwin developed one of the earliest theories of evolution to be expressed in Britain.

TC: Do you think that Charles Darwin noticed his own genetic resemblance to his grandfather Erasmus?

PF: Charles Darwin was very impressed by his father. For one thing, physically, they both had a large nose, and they both had a stammer. That was something that Charles Darwin commented on. He also inherited the family aversion to alcohol. When Charles Darwin was a medical student in Edinburgh, he had to read Erasmus Darwin's medical textbook, which was called *Zoonomia*. It was in *Zoonomia*, in the pages at the end, that Erasmus Darwin first suggested evolutionary ideas. When Charles Darwin went on the *Beagle* voyage,

when he started taking notes about all the flora and fauna that he saw, he had several notebooks. There's one notebook that has got his first sketch of an evolutionary branching tree, and that notebook is called *Zoonomia*. That's just one example of how influential his grandfather's intellectual ideas were, but also his general approach to life, his aversion to slavery, for example.

TC: Why do you think it took the world so long to unravel the geological insights that were behind Darwin's theory of evolution? You need to see that the earth has changed. You see fossils in a historical record. You see sediments of earth corresponding to different areas of time. You would think something like that could have been figured out by the Romans, but it really comes quite late in the history of science. Why?

PF: Well, it comes late. One reason why it came late in *Europe* was because of Christian beliefs. It says in the Bible that the earth was created in six days, and on the seventh day God rested. But, more importantly, I think the idea of evolution – that God created the world just as it is now – took a long time to overturn those ideas. But long before Charles Darwin formulated his idea of evolution by natural selection, that view of the permanence and the unchanging nature of the earth had been overturned, and all the geological information was already in place by then. If you go back, for example, even to Robert Hooke, who was a contemporary of Isaac Newton during the plague, when Isaac Newton was in his country home at Woolsthorpe, Robert Hooke took refuge at a country house in Surrey. He went for long walks over the downs, and he found lots of fossils of marine organisms. Already, in the middle of the seventeenth century, Robert Hooke was arguing that there must once have been a sea that lay over that land because he was finding all these marine fossils. It's a long, slow process. In retrospect, it's quite easy to say, 'Well, why did it take so long for people to discover that?' One reason is that they had other things to do. Another reason is that during the eighteenth and nineteenth centuries, when all the new canals and the railways were being built, then people started slicing down inside the earth, and for the first time they could see all those layers, all those geological strata. Again, it was a different activity – improving transport – that stimulated the scientific insights.

TC: Now, Linnaeus comes up with his system for classifying plants in what, the 1730s, 1740s. That also seems quite late. We've had plants around forever. Christianity is not an obstacle there. Why does *that* development take so long?

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... during the eighteenth and nineteenth centuries, when all the new canals and the railways were being built, then people started slicing down inside the earth, and for the first time they could see all those layers, all those geological strata. Again, it was a different activity–improving transport–that stimulated the scientific insights.
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PF: Plants have been classified for many, many centuries. They've just been classified in a different way.

TC: But not with unique identifiers, right? Everyone would have their own system. There were multiple dimensions. What do you use plants for? The Linnaean system more or less did uniquely identify plants, almost like a search engine, in a way that other researchers could work with, and that's what took so long.

PF: Because people classified plants according to why they needed to use them. Plants are mostly used for food and for drugs. John Ray, in the seventeenth century, did introduce a classification

system. It was a different classification system. By the time Linnaeus proposed his, there was several others, and his was strongly opposed. It's got several important defects, and it's completely arbitrary, the way that it counts the sexual characteristics of the flowers. Also, roughly half the flora don't have flowers that you can count the sexual characteristics in that way. It's a deeply flawed system that was much criticised at the time. It was like all new scientific ideas – it had to be promoted. There had to be almost a sort of public relations exercise to make sure that Linnaean botany was accepted rather than another one. And it's now being replaced. There's a lot of debate about whether it is the best and most useful classification system. It's not absolutely right. It's just one system of doing it.

TC: If we look at eighteenth-century portraits, either of scientists or of patrons, they rarely seem to be happy. Why is that?

PF: [laughs] Perhaps they didn't look happy because they had to sit still for so long while being painted. That's certainly true of the early photographs, that people had to pose for a long while. Because portraits were painted …if they're painted of a man – it's different for a woman – they were done to show his importance and his seriousness and his gravitas. They didn't necessarily show him as *un*happy. In the eighteenth century, they were shown mainly as being noble and austere. In the seventeenth century, a lot of them actually were given very melancholic expressions – someone like the diarist John Evelyn, for example, or Isaac Newton himself, because being melancholy was associated with scholarship – the idea that you would sit inside in a darkened room, and you had very white skin and fine bones. Your physical attributes reflected the brilliance of your brain.

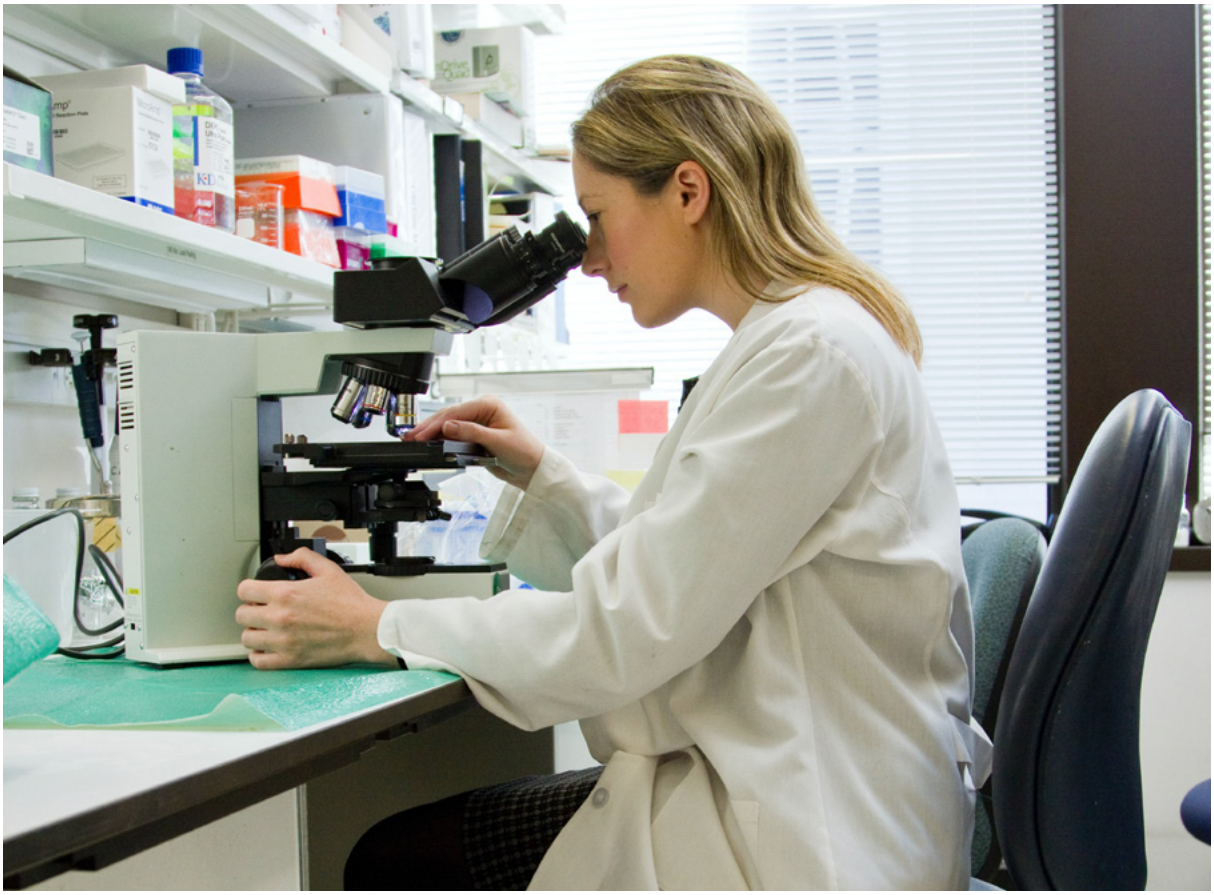
TC: Who is the great, underrated British visual artist in all of British history?

PF: Well, one of my favourite pictures is not particularly underrated. It's by Maggi Hambling. The reason it's my favourite picture is because it's a portrait of Dorothy Hodgkin, who is the only British woman to have won a Nobel Prize for science. Very, very few people have heard of this. I would like to see Maggi Hambling more represented, but also this particular portrait. Dorothy Hodgkin – she won the Nobel Prize. She identified the molecular structures through X-ray crystallography. She identified insulin, vitamin B and penicillin. She was also a very affable, lovely person who campaigned for maternity leave for women in the universities, who was very supportive of other women. She doesn't have a glamorous, heroic, tragic tale like Rosalind Franklin, for example. She was just an ordinary woman who got on, and she did her science, and she had four children, and she was very supportive of her peers, and everybody liked her. It seems to me that she is the ideal role model for a scientist.

Maggi Hambling has painted a very, very sympathetic portrait of her as an elderly lady burrowing amongst her papers, and she's painted her with four arms because she's so busy that her arms are dashing around all over the place. She's got a big model of a molecule in the middle of her desk to show off her achievements.

TC: Now, on the role of women in the history of science, Londa Schiebinger has written that early women's scientific contributions were most prominent in, and I quote, 'illustrating, calculating or observing.' Do you agree? If so, why was that the case?

PF: Science was being carried out at home. Before the nineteenth century, not much was happening in universities or in public laboratories. A lot of women were at home, and they were essentially working with their brothers or their fathers or their husbands. They weren't allowed to go to university. Unless they were very rich and could afford a private tutor, they didn't have the opportunity to learn all the scientific theories that men could because men were allowed to study those sorts of subjects. If you think about the history of science, of course there are individuals, like Newton and Einstein, who made great discoveries, but science isn't just about that. You have to be able to communicate ideas from one person to another, from one country to another. If you think about *that* model of science, if you think of science as being continuous, not as a range of mountain peaks with individual geniuses standing on top of them, then women played a very, very important role because teaching, illustrating, drawing, editing, running museums, collecting different specimens – those are all absolutely crucial. If you think of Isaac Newton, he wrote his *Principia* in a very complicated geometrical language. He said he deliberately made it very difficult because, 'I don't want to be bothered by little smatterers in mathematics.' So ordinary people, even quite skilled mathematicians, found his book impossible to approach. It was only when other people translated it or explained the ideas in it in simpler terms that his vision, supposedly under the apple tree, managed to spread around the world. Women played a very important role in



Photograph: National Cancer Institute

that sort of communication and spread of science. I agree with Londa Schiebinger, but I also think that we need to rewrite how we think about the history of science and what's important about the history of science. Science is about collaboration. It's about cooperation. It's not about unique effort, and women were very important in that process.

TC: Between 1650 and 1710, 14 per cent of German astronomers were women, arguably higher than is the case today. How did that happen?

PF: Because astronomy – it is a subject now that you study at university – but it also was a craft. To study astronomy, to study the stars, you need to make instruments, and the instruments were being made at home. The guild structure was very strong in Germany, and a lot of women – in England as well – who were working in instrument-making shops inherited their father's business, or they were trained up from when they were small children to work with their father. That sort of structure was stronger in Germany than it was in England, but there were also some important female astronomers. For example, when the Greenwich Observatory was built in the seventeenth century, the first Astronomer Royal was John Flamsteed, and his wife, Joanna (Margaret), was also a good astronomer. She was very good at carrying out all the mathematical calculations that are needed to transform the data – the readings of the stars – to transform those data into measurements that can be recorded in a star catalogue. Another excellent example of that is Caroline Herschel, who came over from Germany with her brother, William, and they set up in Bath together. She was going to be a musician, and she started on her musical career. But then William Herschel got the astronomy bug and he persuaded her to devote her life to helping him. She was out there all night, observing on the telescope, also carrying out this work of translating raw data into figures that could be recorded in the star catalogue. Also, on her own, she discovered several new comets, and she became very well known for that in the late-eighteenth century.

TC: Why are women today so prominent in vaccine science, compared to, say, theoretical physics?

PF: I'm glad they're prominent in *some* science. That's absolutely excellent. The problem with theoretical physics – I think there aren't enough good teachers in the girls' schools. That's one problem. I also think we still have a cultural bias,

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which is very unfortunate, which suggests that women are not clever enough to do physics. I personally really resent that because I got a degree in physics from Oxford. I think a lot of men in physics, unfortunately, are still unwilling to recruit or to promote female scientists. Those are some of the prejudices that we have to smash down.

TC: What do you think of the literature on the paradox of gender equality and STEM? For instance, if you go to many of the Muslim nations, where women are quite oppressed, they're quite a high percentage of STEM students. If you go to the Nordic nations, where women really have pretty strong rights, they're quite a low percentage of the STEM students. Does that suggest it's really about preferences and not about social constraints?

PF: I think that those data are very, very interesting. I, unfortunately, don't know enough about the situation in Muslim countries. Well, naturally, it's different in different countries, but that does very strongly confirm what I was saying, that it's a social prejudice, a set of cultural beliefs rather than an intrinsic inability of women to do physics. As I understand it, a lot of women in Arab nations who go into science at university level then end up teaching other women. That's something that we could benefit from in this country. Whereas, a lot of the problems start at school, that girls aren't well taught, and they're discouraged from carrying out subjects like computer science or physics.

TC: In your path to getting a physics PhD, as a woman, what was the greatest barrier or obstacle you faced?

PF: I haven't got a physics PhD. I graduated in physics, and that was at a time when, because I got a good degree result, I was offered a position as a PhD student, which would be fully funded by the government. Life was much better back then. I turned it down because I didn't want to spend the next three years in a laboratory, fine-tuning instruments and working out some number to the tenth place of decimals. I made a positive decision that I was bored by physics. I wasn't very good at the practical aspect anyway, and I wanted to get out in the world, and I wanted to do something different.

TC: In one of your interviews, you said the following. This is a quotation: 'For example, when I first finished reading George Eliot's *Middlemarch* in my early twenties, I resolved to live by her concluding insight that even unhistoric acts, small ones that seemed within my grasp, could have cumulative beneficial effects.' How has that decision shaped your life?

PF: Oh, I still try to abide by that. For example, I was what's called the senior tutor of a college, which is like a dean in America, I believe. I was responsible for the pastoral wellbeing and the educational welfare of about 700 students – something like that – each year. The aspect of that work that gave me the most pleasure and most gratification was when a student was in deep distress for some reason or another, and I managed to help that individual student and help them regain their life and get back to work and become a happy student again. I think that's the sort of thing that George Eliot was talking about – that I had hope that I had a big influence on individual lives. That was the most rewarding aspect of my career.

TC: Who first spotted your talent in science?

PF: Oh, when I was at school, a teacher. In retrospect, I was at a very competitive girls' school, and I was very, very good at science and maths, but I was pretty good at English and history as well. Sorry, it sounds like I'm boasting.

TC: No, you're supposed to boast. That's the purpose of our last segment.

PF: Okay. Well, I was always top of the form. There are lots of other qualities which I don't have, but intellectually, I was a year younger than everybody else, and I was at top of the form. I was a very clever person. Because it was a high-powered girls' school, I think all the teachers and my parents were absolutely delighted that they had a teenage girl who was very, very good at science and obviously could succeed. I also steered into studying science without anybody – including me – seriously questioning whether that was what I actually wanted to do. I was very intellectually competent, so I passed all my exams. I went to Oxford, and I got a very good degree. But I'm far happier now, now that I've undertaken a historical subject and I'm more on the art side. Perhaps that's what I should have done when I was at school, but no one ever noticed that at the time.

TC: Why is it you think you didn't suffer from so much of what is sometimes called a gender confidence gap?

PF: Oh, I did – enormously. I'm much older now. I've had time to get over it, but yes, I was hugely unconfident, not so much when I was at university. After I left university, what I discovered was that I should never ever admit that I had a degree in physics from Oxford because if I was at a nightclub or a party or something, there would soon be this big empty space all around me. At that time, there was a double image. I was being encouraged to succeed intellectually as a scientist, but also, there was still that older role model, that I had to be the perfect wife and the perfect mother. I had to have my nail varnish all sorted out. And I was trying to fulfil both, and I felt that I was fulfilling neither. I don't think it was really until my forties or fifties that I started feeling confident.

TC: Are you a fan of segregated single-sex education, like girls' schools?

PF: No, I'm not. There are still a couple of colleges at Cambridge which are single sex. I have been quite consistently outspoken about saying that I personally think that that's wrong.

TC: For junior high school?

PF: No, I think education should be mixed all the way up. We're never going to get away from gender discrimination if we keep separating people, and we've got to bring them together. Achieving gender equality isn't just a matter of improving the position of women. We've also got to change the attitudes of men and women towards their lives and towards work. That's one of the things I find wonderful when I walk around Cambridge now, and I see young fathers taking their children to school or playing with their children. There's a cooperative parental approach towards their children that's fantastic. It's wonderful for the children, and it is also very rewarding for the parents as well – for both parents, particularly the father. We've got to get away from this idea that work is what really matters because it's life that matters and how happy you are. That's far more important than what work you manage to do.

TC: How did your start-up experience teach you how to write?

PF: My start-up experience – whatdo you mean by that?

TC: You talk about this in one of your interviews, that you had a small – within the family – tech company of sorts, and you had to do writing for the company?

PF: Right, okay. My husband and I both – foolishly, probably – in our early twenties, left our work and we set up a small company making educational material about statistics and about computers, and my role in that was to write the script. I had to translate some quite complex ideas about

computer programming and about statistics. I already knew about them, but I had to translate them into very simple phrases, and each one had to be matched to an illustration. That's probably why I have so many images in my book, because we were making – they don't exist now – but they were called tape-slide programs, the 35-millimetre slides that were synchronised with a tape cassette. You had to present an image and an idea together in very simple, basic terms, and I think that was fantastic intellectual training.

TC: What do we need to do, then, to produce more highly intelligent, popular writers on science? If you needed to learn to write that way, that suggests it's pretty hard to get more through the pipeline.

PF: Well, my remedy, naturally, would be to teach them all history of science, and the latest book – I don't know, I assume it's come out in America – Merlin Sheldrake's *Entangled Life.* He was one of my students, and he did history of science when he was at Cambridge. He is an excellent example of how someone who studied history of science can also be a brilliant scientist *and* a brilliant writer.

TC: What do you find most rewarding in the visual arts? Because your writing is suffused with images, as are your talks.

PF: I think pictures are very important. Pictures include a huge amount of information. Many types of information can only be communicated visually. Personally, I love going to art galleries. And I've found it a very rewarding way of teaching. At the beginning of the academic year, you've got a group of students, and they're all very nervous – not just of me. They're nervous of each other. They don't want to embarrass themselves in front of the other students. If I show them a picture, everybody can say something about a picture. They can say, 'Well, that's a man and a woman sitting at a table.' By encouraging them to explore the picture, more and more ideas come out. It's a very helpful way to start a conversation about what's happening and what all the subtexts are and what all the symbols are.

If you go back to the Renaissance and the seventeenth century, it was traditional that the frontispiece of a book – the image opposite the title page – the frontispiece carried a visual summary of the arguments of the whole book. I suppose the latest famous example was in the middle of the nineteenth century, Charles Lyell's famous book on geology. It had a frontispiece about the Temple of Serapis, and that summarised his whole theory about the temple sinking and rising. On the pillars of the temple, you could see boreholes from the marine organisms where it had been submerged below the waters. That's an old tradition, to summarise an argument in pictures. Perhaps it's one we could valuably get back to.

TC: Who was the greatest female illustrator of science?

PF: Madame Lavoisier – Marie-Anne Paulze Lavoisier. She was married to Antoine Lavoisier, who was the French chemist who introduced a lot of the symbols that we've got today. He introduced the idea that you have an equation in chemistry, and all the weights have to be the same on both sides. When they got married, she was only thirteen. The first thing she did was learn English, which he never did, so she was absolutely essential in his work with all the English chemists and people like Benjamin Franklin from the US and Joseph Priestley from England. He published a big book, a revolutionary book of chemistry – it was published during the French Revolution – which is commonly regarded as a revolutionary book. It's regarded as the foundation of modern chemistry. It's got twelve plates in it. Each of those plates shows an instrument and takes it apart so that somebody who reads the book in Berlin or New York or London could replicate Lavoisier's results precisely and build an instrument that was exactly the same as the one that he was using. She drew all those plates. There's a famous portrait of them. It's in the Metropolitan in New York – a big portrait, a double portrait of the Lavoisier couple. On his side of the picture, there's lots of glass instruments and bowls and tubes, and on her side of the picture – she's looking very beautiful and glamorous – there's a big portfolio. She was an art student, and she learned from David, the man who painted the double portrait. All her illustrations, her sketches still survive at Cornell University in the archive. There're pictures of her made by her, showing her husband's laboratory, and she shows herself sitting in the middle of the laboratory, and she's writing down all the observations, and she's very, very much involved in the scientific work. There're two different kinds of illustration that she did. One was technical illustrations for the book, and the other was this illustration showing science not as the sole product of Lavoisier's brain but as a collective work. There're about ten people in the picture, and it includes her as a woman right at the centre of Lavoisier's science.

TC: Who was an important illustrator for the development of the science of botany?

PF: An important illustrator – well, one of them was

a seventeenth-century Dutch woman called Maria Sibylla Merian. She was an extraordinary woman who went out to the East Indies either on her own or with her daughter – I can't remember. She painted the most wonderful pictures of butterflies and plants and insects. She was a very important illustrator. Her works were collected by Queen Charlotte, who was the wife of King George III. She did a great deal to promote the science of botany amongst women at the end of the eighteenth century.

TC: Last two questions. First, what is your most effective, unusual work habit?

PF: Well, people who have stayed with me in my house have told me that I have a habit of which I was completely unaware – that I sit upstairs, where I'm sitting now, in my study, and I work on my computer. Then, about every half an hour, there's an enormous bang, and I stamp around the room swearing. The people in the house are terribly worried that something has gone awfully wrong. Then I get back to work, and everything resumes as usual for the next half an hour, and then it all happens again. I was completely unaware that I did that until several people have told me that I do, but it seems to work.

TC: Last question: your book about Isaac Newton – and again, the title is *Life after Gravity* – that's coming out soon. It is finished. I recommend it highly. But after that, what will you be doing next?

PF: I've got several projects. One is, I would like to write a book about caricatures. My ideal project would be to have a set of about fifty caricatures by people like William Hogarth or Gillray, which satires on science, and to accompany each caricature with about a thousand words, explaining what the joke is because we've lost touch with it. For example, one of the most famous – which seems relevant today – is that when Jenner introduced smallpox vaccination at the end of the eighteenth century, everybody was absolutely terrified about what effects that would have on the human body. Gillray did a very famous caricature of all the patients in the clinic sprouting horns and turning into cows because the vaccine was based on cowpox. That's just one very obvious example. There were a lot of caricatures about Charles Darwin, for example, representing him as an ape because what he dared to do was bring together animal life and human life. There's another famous one of Marie Curie, and she's with her husband, and it's so typical that her husband Pierre is holding up this tube of radium chloride, and it's shining out on his forehead as though he were the genius. She is dressed very demurely and timidly, and she's hiding behind his back, so it's giving him all the credit for this discovery, whereas actually, it was her work. It was her project, and she was in charge of radiation.

TC: Patricia Fara, thank you very much.

PF: Well, thank *you*.

Conversations with Tyler

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GOOD TEAMS KILL GREAT IDEAS

Listen to rejections, with curiosity

SAFI BAHCALL
THE GREATEST MUSIC OF ALL TIME

Interview by Tom Cridland
Illustration by Vaughan Mossop

Tom Cridland: What type of music do you listen to?

Safi Bahcall: Music has been very helpful to me. I use music to kind of fire myself up from time to time when I'm running or writing, or reading. I mostly play it on repeat in the background. Sometimes when I'm reading or writing, I want things without words. So, I actually like guitar flamenco music. I don't know why that works for me. I really like Spanish music. Or, as long as I can't understand the words, French music. When I just want to be kind of mellow or inspired, I'll probably listen to classical piano music. When I'm running, I'll listen to stuff that fires me up more.

TC: What fires you up?

SB: Oh, Eminem, the usual sort of get you going and fire you up stuff.

TC: So quite an eclectic taste. How often in an average day are you listening to music?

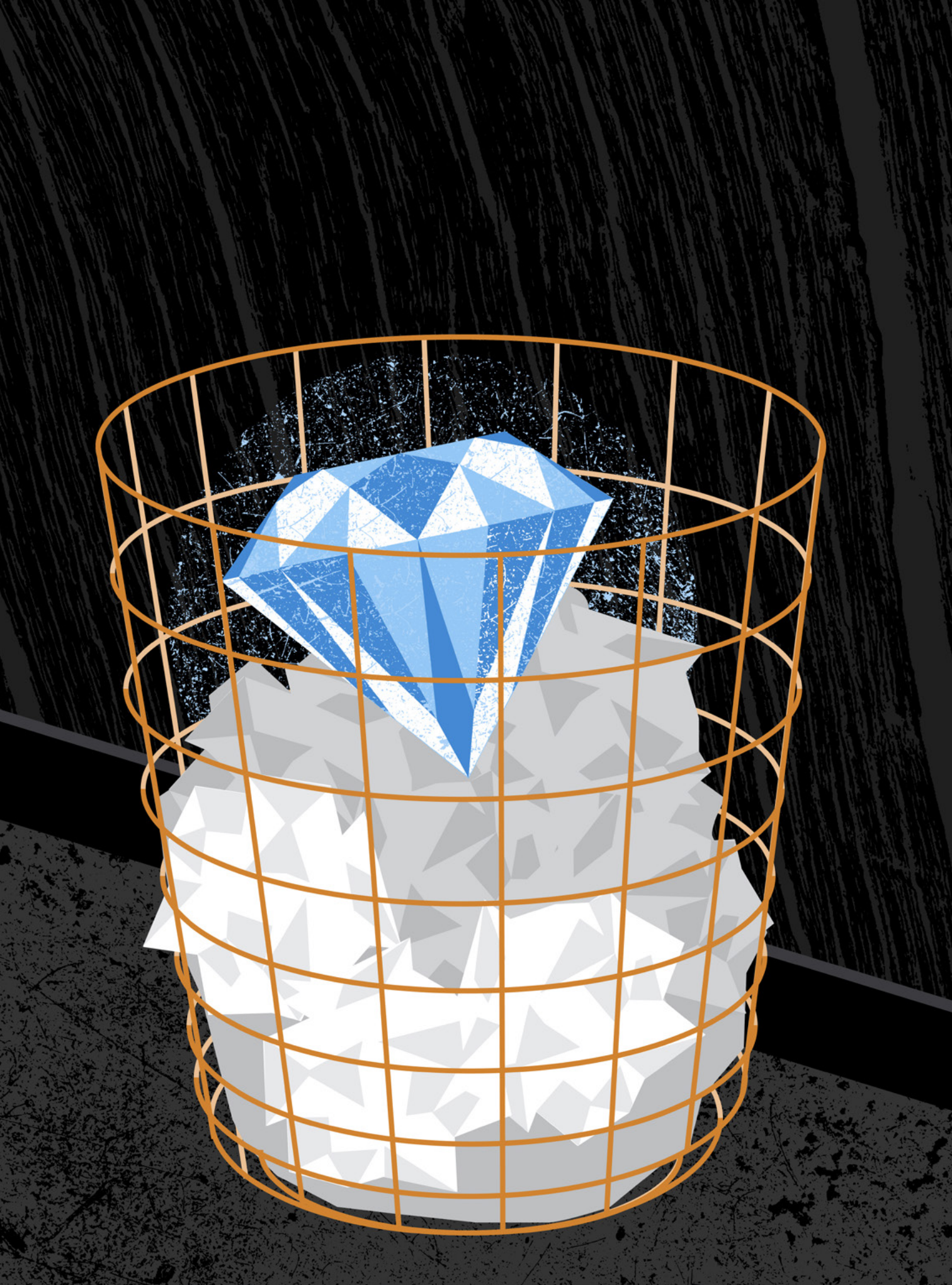
SB: Probably a couple of hours a day.

TC: Do you listen to music more than you listen to podcasts?

SB: I don't really listen to podcasts very much, sadly. I absorb information by reading and I like to take notes. So, if there's a transcript, I'll often read a transcript, but I don't often listen to podcasts.

TC: I think I prefer reading to podcasts as well, which is ironic considering I host a podcast. There you go. So, and in terms of your music, like your musical taste, what was the music that you grew up on? What music has the most sentimental meaning to you?

SB: My parents didn't have too much music, but they had a few records. Beethoven's piano sonatas. So when I would come home from college vacation, I would get a book – I had this really old record player and LP player – and I would put on either Beethoven's piano sonatas, or one or two like Harry Belafonte. This is really sort of old time. And



> When you're writing, you just have to disappear into another world. You have to disconnect from the current world, and all the concerns and people around you...

I would play it on continuous repeat. So, whenever I hear those notes, sometimes the opening notes, it takes me back to being a kid, and coming back home from college vacation, and spending time with my parents.

TC: You mentioned listening to music when you work. Is this throughout your writing, you've got music on in the background or just occasionally, to sort of fire yourself up, or get yourself into the right mood, and then you switch it off so that you can have complete concentration?

SB: I think it just helps me ease into a different mode. When you're writing, you just have to disappear into another world. You have to disconnect from the current world, and all the concerns and people around you, and whatever's going on. So, it just helps you disappear into a whole new world that you're building and creating. It's sort of like a tunnel. It's just, 'Okay, we're leaving one world behind and going into a new world.' And if you create some routines that help you with that it just makes it easier and faster to get there. I have these Sony noise-cancelling headphones, and they're really good. It just gets completely quiet, and then you can put whatever you want on your phone. The sound is great, and you're in a different world within seconds.

TC: Yeah. It's nice to shut out the world and just enjoy music. I want to come to your book, *Loonshots*. Why did you decide to write this, and for those who have not read it or heard about it, what does the book discuss? Just an introduction for those people who aren't familiar with it.

SB: I started being interested in it when I was running a biotech company. I was a CEO of a company that was developing new drugs for cancer. My father got sick with a rare type of leukemia, and I figured, 'Well, now I'm in the field. I'm part of this industry. I can find something and do something that would help him,' but unfortunately, nothing I could do made any difference and he died not long afterwards. Then, over the years, as our company grew and we got bigger and we went public, I just kept noticing that there were so many promising ideas. Ideas that could have helped my father, trapped inside the basements of large companies, small companies. Not because anybody was a bad person, and they didn't want those ideas to advance, but for some reason, when you put people together into groups, good teams would start to kill great ideas, especially those ideas that are sort of seemingly crazy that end up becoming very important.

Since there wasn't a good word in the language for 'seemingly crazy' ideas that everybody dismisses but end up becoming important, I made one up: loonshots. That was the origin of the book – about why it is that these good teams kill great ideas. The underlying reason was something that people had overlooked for a long time, about why groups suddenly change. You take the same people and put them in a small group, and they're all excited about one idea. But then you put them in a very different environment, and in a much larger group, and those same people, despite the best intentions, will kill really good ideas. And so, what was behind that change in behaviour? I ended up doing some work with president Obama's Council of Science Advisors and looking at research. In the course of that work and research, I realised there was a broader principle. It's the same thing that happens inside a glass of water: molecules are sloshing around. They're wild. They're crazy. They're really enjoying their time inside that glass of water. Then you lower the temperature and, all of a sudden, they freeze. They become totally rigid. That behaviour suddenly changes, yet it's the exact same molecules. So, I realised you could apply those principles. I ended up writing *Loonshots* and telling stories from how the Allies won the Second World War, to the rise and fall of Pan Am, to Steve Jobs, and the rise of Pixar and Apple, and how they're all connected by this one idea: how

what happens inside the glass of water can help you understand the behaviour of groups, and why good teams will kill great ideas, and what you can do about it.

TC: This suggests that a lot of the greatest achievements out there started life being rubbished by others, being told perhaps that, 'Oh, this is never going to work out. This is crazy, etc.' That's something that will resonate with much of my audience, because probably a lot of people listening have ambitions and have things that maybe their family, people who love them, think they're a bit nuts for aiming so high, are sort of advising them against pursuing these things. So what do you say to those people who have crazy ambition, who are reaching for the stars as it were, and you have people in their lives who are saying, 'No, I think you should just stick to this. I think you should just play it safe.'?

SB: Just this morning I got a note from a young woman on Instagram who wants to be a musician. She's from Korea. She sends me a picture of her book in Korea, and she says, 'This might be weird for you, because I'm no business person or in biotech or in science, but this book is making me cry, a lot. And I just wanted to let you know, your book is making a singer who lives in Korea, cry. It's sounds weird huh? You've probably written this book to inspire business people and researchers. I just feel like I never really got nearly any chance to shine as a singer. It's a long story. I don't want to bother you with it, but as I'm reading your book, I feel like I am one of those loonshots that people ignored. And it's kind of a relief to know that maybe it's not only my fault that I got no chance yet. I always blamed it on my lack of talent, but as I was reading your book, someone who is extremely talented and hard-working like Akira Endo, who discovered the statins, might have to go through the three deaths; the three deaths of the loonshot.'

I thought of that when you were talking about musicians being inspired. She just wrote me, and I ended up chatting with her a little bit. So, one thing to keep in mind is that if you're struggling, if you're in the middle of something that's very difficult, is advice that I got a few years ago. It was advice from a Nobel Laureate who would fly over from the United Kingdom to help advise our company. I was feeling pretty down one night because our project in the lab didn't work out. We're having drinks after work, and he said, 'Well, why are you feeling so down?' I said, 'Well, this project didn't work.' And he leans over and pats me on the knee, and goes, 'Ah my boy. It's not a good drug unless it's been killed three times.' And I always remember that – that it's probably not a good project, it's probably not important, not meaningful, unless it's been killed three times. Unless you struggled three times. And the reason is, because if it was just all smooth sailing, easy peasy, as my daughter likes to say, if it was just really pretty easy and not a big deal, somebody else probably would have done it. So, the number one thing to keep in mind is to expect those three deaths. Number two, I don't have a very good memory. So, I think of some of these things with mnemonics – LSC: Listen to the Suck with Curiosity. That for me turned out to be very important over the last few years, when I was writing, but also when I was starting something new. Whenever you start something new, it's not perfect, but you're really passionate about it. You're really excited. If you're kind of a true entrepreneur or artist, you're really excited about your thing. And when you show it to somebody, maybe it's an investor or a partner or a customer, and if they don't like it, if they start criticising it, your first reaction is that you want to punch them in the face. 'I'm really excited about this thing. What's the matter with you?' And then your second reaction is to dismiss them. 'What an idiot. Doesn't understand my genius or my brilliant business idea, and how this is going to take over the world.' But the really great artists, scientists, business people, their super power, their skill, was listening to that suck, to that negative comment or rejection with curiosity, like a detective. Like putting on a Sherlock Holmes hat, setting aside that sort of urge to punch them in the face and asking, 'Hey, help me understand what was it that didn't quite resonate for you?' Very few people do that. And very few people do that well, because most people don't want to tell you.

Let's say you're going to raise money from some investor or a venture capitalist. They may think it's the dumbest idea they've heard. And they have three reasons why, but they're not going to tell you. They don't want to get you angry or mad. They want you to come to them with your next idea. So you have to develop this odd skill, which is really pulling on this thread to tease it out, 'Hey, just tell me, I know it's kind of a weird thing to ask, but it'd be a huge favour if you could tell me what is it that didn't quite work for you here?' Another trick that a friend of mine uses is to ask a friend, a mutual friend, to go in and ask that part, because sometimes they just don't want to give you bad news to your face. There's no upside for them. You ask a third party, who's a friend of yours, and a friend of theirs, to go in and get the real deal. Then when they come back, that's really useful information. Let's say you have a product or a business, you're an entrepreneur. And they say, 'Well, there's this similar product coming

out of Sweden for half the price. That's why I didn't want to invest in that person's business.' You're like, 'Whoa, I didn't know that.' And then you go and look at what they're doing in Sweden, like, 'Well, I could do that and I could do that better. And I can even do it cheaper than them.' All of a sudden you've learned something incredibly useful that can help you. So, number one expect the three deaths. Number two, listen to the suck with curiosity.

Number three is learn to wear two hats. This is very important, especially if you're a solo entrepreneur or a solo artist – your artist hat and your soldier hat. And what I mean by that is, your artist hat is the one you wear when you're creating, and you're trying to be different than everybody else. You're trying to take a lot of risk. If you're an artist, you want to try nine things that fail, and the tenth one will change how people see the world. But if you're a soldier you're doing exactly the opposite, you're trying to do on-time, on-budget, on-spec, consistently with quality. If you're making parachutes, you don't want to try a lot of experiments. 'Oh, let's just give these guys ten parachutes and see which one is better.' You want them to work the same way every time. So, if you are a solo writer, entrepreneur or podcast host, you want to be very clear with yourself on which mode you're in when and love them both equally. Many people think, 'Well, if I'm an artist or a creator, it's just about ideas.' No, it's about ideas, but it's also about execution, about getting things done on time, on budget, on spec. The really great artists know how to balance both and how to shift modes quickly. So, if you're a writer, for example, you have to create a mode. Sometimes in business, entrepreneurs they'll have a different room. A company that I know has a different room with completely different prompts, like wild creatures when they want to be in artist mode creating something totally new and imagining new products and new experiences for their audience or their users. Then they have another room when they want to focus on how do we manufacture this? What are the timelines? What are the metrics? And it's very difficult when people aren't clear that there are these two hats, these two modes, the artist mode and the soldier mode, they get very confused and frustrated. When they're supposed to be creating, instead they're focusing on numbers and metrics and reducing risks. Now, when you want to be creating, you want to fail as much as possible. You want to try lots of things, most of them are stupid. And that's great. The fact that you're failing is a sign that you're on the right track. You're pushing past where everybody else has probably already given up. But then when it comes time to delivering your product, whether it's a book or a song, you better get that done on time, with quality, when people expect it, otherwise people aren't going to work with you. You're not going to have a business.

TC: Do you think too many artists and too many creative people take the view that, 'Oh, I can only be inspired when the inspiration comes to me' and, 'Oh, I can only write a song when I've smoked a lot of weed and I've taken a week off and then maybe I can muster one song. But even then I can't, you know, finish it until I'm feeling in the right mood.' And then they never end up finishing their album and they never end up able to pay the rent, and then they have to give up and work a job that they don't want. I'm exaggerating here, but do you think a lot of people fall victim to that sort of victim-hood mentality? 'I'm the impoverished artist and I couldn't possibly be expected to treat anything in a corporate way or with a business hat on in a way that's aiming to be efficient,' because that is something that I think a lot of artists struggle with and they struggle with the idea that they've got to get things done on time.

SB: Yeah, absolutely. If you just sit around waiting for the muse and making fun of all this stuff about being on time, on budget, you'll never get anywhere as an artist. You'll just be one of the many people who has lots of ideas. Ideas are a dime a dozen. It's about translating those ideas into something real. And people would just sit around waiting for the muse. *Loonshots* tells all these stories, from seventeenth-century astronomy to the rise and fall of the Chinese dynasty to Edwin Land and Polaroid and SPICE satellites and the birth of James Bond. But when I started, it was a blank piece of paper. In hindsight people say, 'Oh, wow, the logic here makes sense. Yeah. All of these things are connected. Obvious.' No, I just had a blank piece of paper and no idea what stories I would write or where they would come from. I had a glimmer of a principle and some things I thought would be useful, but I would get in my desk, start at 9.00 am every morning, put on the music that inspired me and try to fail, try to write really stupid stuff. And that was not hard. Trying to fail and write really stupid stuff is pretty easy once you give yourself permission. I have another mnemonic. Again, I don't have a great memory. So, the mnemonic I use is FBR: Fast, bad and wrong. And the reason is, if you try to be perfect, if you try to wait for the right time or the right place, nothing will ever happen. So, I sit down every 9.00 am, go to a room, put whatever, little karma stones you need around you or music that helps you remember. Another thing that's useful is a cookie jar. A metaphorical cookie

Photograph: Caught In Joy

jar. A friend taught me when you think you can't do anything or are not creative, you create a list of times in your past where you did something that actually you thought was pretty good. So, if you're feeling stuck or down, or in the beginning of the morning before you start your creative routine, go to your cookie jar. Often artists, including myself, beat themselves up. 'Oh, I can't really do this. I can't really do that. What am I doing? I'm stuck. Go back to your cookie jar and you'll see, six months ago, you thought the same thing and then two hours later, you came up with the best thing of your life. And you're like, 'Whoa, actually, that was pretty good. How? And before I came up with that thing, I had exactly the same feeling I'm feeling now.' So now you're feeling, 'Oh, that was not bad.' And then you read another one. 'Yeah, that's right. I thought there was no way I could figure out this place I was stuck, and then I came up with this thing, which people loved.' So, within a couple of minutes of going through your personal cookie jar, whenever you're stuck, you reach in and you grab a little cookie and you start munching on it. 'Oh yeah, that was great that I did that.' But then the trick is to write fast, bad and wrong, or create fast, bad and wrong, which means close your eyes and start typing or start scribbling. And fast, bad and wrong means be wrong. Be as wrong as you can, write as many stupid things as you can, and that's okay. Because what you want to do is get the creative engine going at full speed. You want to have your car, if that's your creative engine, going at 60 miles an hour, 90 miles an hour. What you don't want to do is have your car go from zero to three to five to seven and say, 'Oh, look at the little bird on the road. Let me stop the car and go look at that one.' When you're writing, for example, if you have some perfectionistic tendencies, there's an urge to write down a sentence or two or a paragraph, and you say, 'Well, I could really improve that sentence by moving this around or finding a better word. Let me look up a Thesaurus, or let me think of a better word', or if you write, like in 1947, this happened, you're like, 'Oh, what does it mean 1947 or was it 1948? Let me go look in Wikipedia, etc...' All of a sudden your car has gone up from zero to three, you're going and now you've just stalled again. So, you have to absolutely give yourself permission to write wrong, write stupid, get wrong facts. Just put them down on the paper. And I have to say, as a person, who's a former scientist to start typing something and put 1947 when I'm not sure it's 1948 or 1946 or 1949, or how to spell a word and just let it go, that actually takes a force of will. I have to

just say, 'No, don't go check. Just let it go.' I have a key that I can press that puts a grey box around it that gives me permission to keep going and then I don't have to worry about it. I'll fix it later. But the advantage of that is that's where the ideas come. Once your car is at 90 miles an hour, all of a sudden, you think it's the worst idea in the world, and then all of a sudden something changes. All of a sudden good stuff starts coming out. And it happens every time.

TC: So, you can't move too slowly. You can't overthink things and be too overly cautious when you're working on something. Is that a part of this?

SB: Yeah. It's kind of like the artist and soldier, managing those two hats. You want to separate the creating part, which is where you're going at 90 miles an hour and you just got to get everything out of your brain. You just watched the scenery, you're zooming around and understand that later, like me, I would break it up. The early part of the day was the creative stuff and then the later part of the day would be the editing. Later you'll go back and clean it up. You want to create a routine where you can access these two different parts. So, I'll give you a story that stayed with me. It's a story from the music world, of a now-famous artist who understood the two hats; the artist and the soldier hats, and how to manage them very well. So, this was a British band in the mid-1960s. I think it was around 1965. They weren't very well known and they came to the US to do a tour. They were opening for some bigger band and they realised they weren't really getting anywhere, and what they really needed was a hit song. And they really needed something that would resonate. That people could remember. Otherwise, they're just going to be stuck as a mid-tier band, nowhere. But they also had no money. So at the same time they had to be playing covers or whatever they were doing just to make money. So, it was very hard to separate those two things. One of them is you're doing work, your gigs, to make money. You're not really creating. You kind of sold your time. But this guy realised that he was the most creative when he was just about to fall asleep. That was when he had the weirdest ideas. And that's common. You're in a transition between two worlds and your brain starts to float around. You're not focused on, 'Alright. I got to be at this place at this time with these people and play this thing and entertain these guys to make money.' So about to fall asleep, your brain is wandering. What he would do is he would put a tape recorder next to his pillow and as he put his head on the pillow, he would just press play. And so, this guy went to sleep one night. They were in Florida. I think it was Clearwater, Florida. They had just played all day, had been playing all week. He went to sleep and woke up in the morning. He knew that he had had some idea, but he couldn't remember what it was. So, he pressed play, and he heard, 'I can get no ...' That was the first few bars of I Can't Get No Satisfaction. And that was Keith Richards from The Rolling Stones. And that's where that song came from. Because he understood, 'On the one hand, I've got the soldiering. I got to be on time. I got to do these gigs. I've got to make money, otherwise we have no band. On the other hand, I got to create.' And he found the little thing that worked for him, which is he was most creative before he went to bed, and he captured it with this recorder. So whatever works for you is fine. Whatever routine. But you've got to understand there's both, and you've got to love both equally. You've got to love your artist and your soldier. If you're running a company, you need both kinds of time, you need both kinds of people, and if you're a solo entrepreneur or a musician or an artist or a writer, you need that creative time where you're failing as much as possible, and then you need the soldier time where you're fixing things and being on time on budget, and you've got to love both pieces equally. There's no right or wrong. Neither one is better or worse. The people who are really successful have those two hats, understand those two hats, and use them to help their music or their writing or their business.

TC: Very true. So, this book, *Loonshots,* emphasises the need for those people with the crazy ideas. Because a lot of people would think that it's being the soldier that matters. At the end of the day, a man's got to eat, you know. We've got to put food on the table and people have to provide for their families, and therefore a lot of people, the people who might be themselves sensible, would say 'Focus on being the soldier, focus on getting things done, being efficient, making money.' And there probably could have been people in Keith Richard's life around that stage saying, 'Just stick to the covers, man. You don't need to write songs.' I mean, who knows? Probably they would have been ill-advised, well, definitely they would have been ill-advised to say such a thing to such a great songwriter, but is it difficult for people to see the point in creating sometimes. What would you say to people who lost hope, who have been persevering for a while with crazy ideas? When do you give up?

SB: That's a great question. There are a couple of different pieces to that question. One is if you're struggling to create, give yourself permission to

“I think it was Hemingway who said, ‘The first draft is always shit.’ It’s absolutely normal. The stuff that you think of as beautiful went through many passes of looking really crappy.”

fail, give yourself permission to play, permission to write down as many stupid, silly things as you can, because that’s where the great ideas come from. That’s about getting your car from zero to five to ten to fifteen. You have to go from zero to fifteen to twenty to get to 90 miles an hour. You have to pass through those slow stages. So, if you’re struggling to create, give yourself permission and recognise that the early stuff you do will always be pretty crappy. I think it was Hemingway who said, ‘The first draft is always shit.’ It’s absolutely normal. The stuff that you think of as beautiful went through many passes of looking really crappy. I think I told the story in the book, in *Loonshots*: I really enjoyed the *Star Wars* movies, including the first *Star Wars* movie. But the first *Star Wars* movie was called *Adventures of Luke Star Killer*, and it was about chasing some books through the galaxy, and it started with this fifteen- minute lecture. It was horrible. The early versions of that thing were just, you read it, you’re like, ‘This is terrible.’ In the end, it became one of the greatest movie franchises of all time and a great story. Everything came together, but the early versions were just absurdly dumb and terribly written and would have been horrible. So, you realise someone like George Lucas who makes these multi-billion dollar films, the early version of his stuff looked like shit. And you’re like, ‘Oh, okay. So, if the earlier version of my stuff looks like shit, that’s pretty normal.’ If you’re struggling, the first thing is to give yourself permission to go through those three deaths, to get your car up to speed, to fail, to write crappy stuff. It’s totally okay. That’s part of it. Every single great person and great artist in history went through exactly the same thing. I think one of the things that a bunch of younger artist types and writer types or entrepreneur types experienced was also the early story of Steve Jobs, who failed at his first three companies. The first Apple he failed at was headed for bankruptcy because of a number of his decisions. The second company he started Next Computers also headed for bankruptcy, it was kind of a disaster. And the third company Pixar, which he acquired, he tried to make it into a computer company and that was a complete failure. He had three failures under his belt and he was written off as a business idiot until he got back to Apple, and that was kind of the fourth time. When he came back to Apple, it was his fourth go to try and create a new business, and that obviously worked very well. The early Steve Jobs made so many mistakes and was just considered by people around him as, ‘This guy doesn’t know anything about business, look at what he’s done here.’ So yeah, if you’re struggling, just remember that there will always be people around you who have the soldier mentality. By the way, I do a fair amount of work with the military, which wants to innovate faster and better, where everybody is a soldier, literally. But imagine you are on a nuclear submarine, for example, hundreds of miles from shore, deep underwater. I was on one not long ago with an Admiral who’s responsible for trying to help the Navy innovate faster and better. So, if you’re on a nuclear submarine, deep underwater, 200 miles from shore, you don’t want to start hearing clanking noises from your nuclear engine. That would be bad. For that you need to reduce risks to be on time, on budget, on spec, with high quality. But at the same time, you don’t want to be surprised by a new kind of torpedo. Either way you’re dead. But one thing – getting your nuclear engine, your franchise, your core working right – that’s about being a soldier and reducing risk. On time, on budget, exactly the same time every way. But coming up with some new kind of product or new kind of weapon that no one’s ever seen before, that’s the artist. So even in the military, you need both. And if you don’t have both, that’s when you’re dead. If you fail with either one, you’re dead. A lot of this is getting people to understand that you need both. And what I found is that everybody has a language that works with them. It may not be your language, but let’s say you’re talking to someone who’s an investor. They have a language that works for them. You just have

to find that language. The language with investors is actually surprisingly easy: if you find where they made money in the past, you can help them see how your idea is kind of like the thing that was their big success in the past. But just a little twist on that. Then they're like, 'Oh yeah, I love that.'

TC: That tendency for everybody to relate everything. I mean, it's logical that it would be. To me, as humans we have a tendency to just relate literally everything, including complex business decisions back to our own personal, narrow focus and our personal narrow experience of life. What we've seen life to be, as opposed to thinking that other people could have a different perspective. I mean, does that explain more or less everybody's actions and behaviour?

SB: Well, Tom, I think you've created a general theory of human behaviour. Congratulations. You should publish it. Become a professor.

TC: Oh, well, yeah, maybe. But I think it's probably a pretty obvious thing. Probably to a great intellectual like you, I'm just sort of reciting ABCs.

SB: God, that would scare me, if someone called me a great intellectual.

TC: Well, a great writer then.

SB: Well, thanks for saying that. The idea you just mentioned, that our brains are not made of silicone. We're not computers. Our brains are very good at certain things. They're better than computers at certain things. Like if I was going to throw a ball at my computer, it's not very good at catching it, whereas I can do that without even thinking. My daughter can recognise a tiger versus a cat very quickly, but for computers it's actually very difficult. On the other hand, computers are very good at adding numbers and remembering things from a long time ago, whereas human brains are not. So, humans are very influenced by their recent past and recent events. When I was running a company, developing drugs, new drugs for cancer, we worked with a lot of physicians. And it was just a very common thing that we knew that if a physician had just used a new drug in two patients and it worked well, the physician would be like, 'This drug is great.' But if you imagine a drug that works only one in four times, for one in four physicians, they would just have that happen by chance. So, people are very influenced by what happened recently. There are all these sort of biases in the brain and people see things, like you were saying, through their own lenses, and their own histories, and their own recent experiences, and their own biases, and their own languages. So if you are a solo artist or a solo entrepreneur, and you want to persuade people to give you a chance, or to work with you, the wrong approach is, 'Let me keep pounding on them with my story until they get it.' What you want to do is step outside yourself. Imagine you're in their brain, and in their shoes, and in their chair. What language works for them? Well, they're probably surrounded every day, ten times a day by people handing them something saying, 'I'm a genius, and if you don't listen to this, your life will be ruined.' So if the eleventh person comes and says, 'I'm a genius, if you don't listen to this, your life will be meaningless,' it probably won't go over very well. You want to think about what is the language that works for them? How do they like to communicate, what turns them on and try to use language that will work with them. It's true in personal relationships, by the way, too. If you have a spouse or a partner where one communication works for her, and you're used to doing a different kind, even if you're both well-intentioned, if you're using different languages, it's not going to go over well until you understand how that person responds to things. And it's the same thing with writing or creating something and getting partners or investors.

"You want to think about what is the language that works for them? How do they like to communicate, what turns them on and try to use language that will work with them."

TC: Yeah, knowing who you're talking to, knowing

your audience, even if your audience is only that one person who you're interacting with. Why should people read *Loonshots*? Why should the average person listening to this read *Loonshots*?

SB: Well, if you've got some idea that maybe some people think is crazy and you want some suggestions and advice on how to help it succeed, then this is for you. Why do you think Tom? You called me. I get tons and tons of requests for podcasts and interviews and companies and so forth, but not many from a music podcast. So, what resonated for you? What made you want to reach out?

TC: Well, I mean, you've pretty much summed it up there. I, like many people, am very interested in crazy ideas, being ambitious and trying to better oneself. I think that people listening to this podcast would also be interested in that, but also the title of the podcast, *Greatest Music of All Time* is somewhat misleading in that I do speak to a lot of musicians and a lot of the episodes are 100 per cent on music, but I've spoken to all sorts of people from all sorts of industries. Writers, actors, political commentators, models, people in fashion, whatever. It's about using music as a sort of universal language. Sometimes hardly any of the episode, sometimes for the whole episode, but then discussing things that I find interesting. That's what it's evolved into. It was just going to be a one-off series about music, so in a way I sort of think, 'Oh, maybe I should rename it.' I like the title, and it still falls down on music a lot in terms of what the episodes prioritise discussing. But sometimes we talk about vastly different things and it seems to always go down well. This book is just a wonderful book. It's an awesome idea for a book because a lot of people do face that type of pushback to their ambitions. And then of course, there's that more serious strain to it, about curing diseases and transforming industries and, perhaps more important work than just people who might have that crazy idea of becoming a big musician or songwriter or even just trying to do that professionally. So that's also something that's of great interest. Why do you think that we can cure diseases better if we nurture crazy ideas?

SB: Well, I mean, the mRNA vaccine is an example of an idea that was dismissed for twenty, thirty years or so. It was a *Loonshots* champion who kept it alive. It was this Hungarian woman, who was denied tenure, and it was this seemingly crazy idea that we can get our body's own cells to manufacture drugs and proteins. We didn't need to grow those proteins and drugs in a lab. We could just give the instructions to our body and our body would make those drugs. So that was a crazy idea, but she persisted, and because of that, we have these couple of vaccines that worked very well for COVID. So, it's an example of how persisting with crazy ideas can work. Tom, I suspect when you started this podcast, it was probably a crazy idea. So, what now? What's next for you? What are you going to do at the next phase?

"I favour longer, more nuanced conversations when we're talking about podcasts, although, like you, I struggle to listen and consume them, so therefore, why should anyone consume my lengthy conversations?"

TC: I'm not sure. I mean, to be honest it's difficult to know what to produce in this modern era, this algorithm-based era. Because I favour longer, more nuanced conversations when we're talking about podcasts, although, like you, I struggle to listen and consume them, so therefore, why should anyone consume my lengthy conversations? But I don't know, I do a few different things. I definitely plan on continuing this podcast though. Not with any business motivation behind it, particularly. The main thing is to talk to amazing people. Because if you going to ask anybody, 'Oh, why do you want to be successful? Why do you want to make money? Why do you want to do well professionally?' for most people or for most people with any sense, I

think it would be, 'Oh, so that I can have interesting conversations and interactions.' The one thing I will say, however, is that I preferred doing them in person. I don't know, where do you fall on life going all online? I mean, maybe you disagree with me. I know quite a few people do, and quite a few people love the convenience aspect, which is great. But I feel like I get quite a headache from the amount of time I need to spend looking at a screen.

SB: I mean, I think there's a place for both. I would never give up the in-person meetings. Just last night I had a catch up with an old friend that I hadn't seen in two years in person, and that was great. It's kind of irreplaceable. But I've had folks reach out to me from all around the world. I mean, I don't know that you and I would be talking if we had to be in person, but it's made it a lot easier to connect with folks all around the world or reach more people. I've done 2000-person audiences, actually 10,000-person talks, that are much easier now. So, I think there's a place for both. Let me ask you, we talked about how it's important to listen to the suck with curiosity. What would you say you've learned that has made your podcast better? What's the one or two most important things you've learned about doing this over the last year or two, that you didn't know when you started and would have been useful to know when you started?

TC: Well, I'd been told it but I hadn't believed it, and it's not to undermine the people who've come on, because they are extraordinary. What they've achieved I couldn't possibly fathom being able to do. And in the musicians' cases, I'm never going to be able to play bass, like Verdine White, I'm never going to be able to write lyrics like Don McLean, etc, but I really think that one thing that's resonated with me is that famous people are just human beings. And I know everybody says that all the time and people who haven't met any famous people are like, 'Oh, well, it's easy to say that if you've spoken to famous people.' But it's true. Sometimes you're going to think they're boring, sometimes you're going to think they're exciting. Sometimes you're going to enjoy talking to them more than others, but you should really not be looking to speak to people just because of fame. Their art should really resonate with you. And you should want to speak to them because of something more than celebrity status. Celebrity culture is ultimately vacuous and meaningless in my opinion. And so the number one thing that I've learned from the podcast, as bizarre as it sounds, is how much I love the people who no one's heard of, who don't lead public lives, in my life, how much I love them and I value them, and I've done an extraordinary amount of episodes this year. In the pandemic, because I wanted to stay productive, I've spoken to over 400 people. I've loved every minute of it. But it's made me think, more than trying to get this podcast off the ground because it's grown a lot and become really good, I really love just kind of wasting time with friends for hours. In person with no purpose behind it. Learning nothing other than just how much I love their company. I know that also sounds like a bloody cheesy thing to say, but that is honestly the number one takeaway from it. I'm sorry if you were expecting something a bit more sage than that.

SB: That's fantastic. I think that's a great note to close on.

TC: Yeah, I do agree. Safi, thank you so much for coming on the podcast and congratulations on all the success that you've had with this book. It's called *Loonshots: How to Nurture the Crazy Ideas That Win Wars, Cure Diseases, and Transform Industries*. It's available everywhere, all good bookstores and Amazon, etc.

SB: I have a website: loonshots.com and people can reach me through that website if they want. And if they send me an email its safi@bahcall.com, I can send you folks a free chapter.

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GOODWILL WINE

THE REAL EGALITARIAN

On Equality, Work and Ideology

ELIZABETH ANDERSON
MINDSCAPE PODCAST

Interview by Sean Carroll
Illustration by Vaughan Mossop

Sean Carroll: Imagine two people with exactly the same innate abilities, but one is born into a wealthy family and the other is born into poverty. Or two people born into similar circumstances, but one is paralysed in a freak accident in childhood while the other grows up in perfect health. Is this fair? We live in a world where inequality is growing up in poor and wealthy countries. Some people will say that's just how it should be. Jeff Bezos is just that much more talented than you are, he deserves all of his money. Other people will say, well, he deserves to earn as much money as he can, but we have the right to tax him, there should be a little bit of redistribution. Maybe it would be good, in other words, to decrease the amount of inequality in a financial sense. But all that's just about the equality of resources, of wealth. Almost nobody thinks that everyone should have exactly the same amount of wealth. But what about something like equality of opportunity? The idea being, we come into this world with certain capacities, and some of us are just going to be better at other things than others, but we should all have equal opportunity to let our powers and capacities flourish and be rewarded for them? That sounds like an attractive kind of goal. But maybe even that's not the right goal.

Elizabeth Anderson is probably the leading person in the world thinking about equality from a philosophical point of view, but she's not nearly as well-known as she could be. Elizabeth became famous in the philosophy of equality discourse with an article in 1999 called *What Is The Point Of Equality?*, where she actually goes against the idea of equality of opportunity being the thing that we should aim for, not from a sort of conservative point of view that says we shouldn't even aim for equality, but that we should aim for a different kind of equality. I have to read the opening of this article that she wrote, because it's one of the best openings of a philosophy article I've ever read. She says: If much recent academic work defending equality had been secretly penned by conservatives, could the results be any more embarrassing for egalitarians? Her point being that the kind of equality that the purportedly progressive side of the debate is championing is actually not very progressive at

all, it can really decrease the dignity and value of human existence. She is arguing not for equality of opportunity, but for equality of treatment, for a sort of democratic equality where we focus on the social roles that people have and the way that they relate to each other, trying to make each other flourish in this world in an equal way rather than just trying to hand out money so that everyone has the same amount. Elizabeth Anderson, welcome to the *Mindscape* podcast.

Elizabeth Anderson: It's great to be here.

SC: You engage a lot with the real world, by philosopher standards, but maybe we can start with setting the stage a little bit with some background ideas about how you go about approaching these things. One idea I wanted to ask you about was the idea of ideology. I've heard and used the word ideology myself for many decades, but I think you changed my appreciation of it. As a physicist, as a scientist, I think a lot about the fact that people have models of the world and they have ideas about what's going to happen next, and they update – things go wrong. Am I crazy to think that you're saying that we should think of ideology as just the social version of that?

EA: That's exactly right. The thing is, is that it's used for practical purposes. We have a picture of our social world which we use to navigate our way through. So, ideology in this sense does not have to be pernicious. It's not a pejorative use of the term. But it can become pernicious if our picture of our social world is either missing some major elements or maybe distorted in various ways that leads us perhaps to behave badly or treat other people unjustly.

SC: Let's emphasise this non-pejorative sense of the word, because we'll use it later on - everyone has an ideology and it's not a bad thing to be ideological. It's how you approach the world in terms of what you pay attention to, what you expect to see and what it all means to you. Is that something close?

EA: That's quite right, although I wouldn't necessarily say that everyone has one ideology. Often what happens is in different social contexts, we take on different ideologies to navigate that part of the social world that we're engaging with at the moment. I don't think that most people have very coherent world views. Philosophers are paid to have a coherent world view, but I wouldn't even guarantee that I have such a coherent world view in my everyday life.

SC: So, ideology in that sense is a necessary thing because there's an infinite amount of things we could pay attention to or care about, and we sort of filter some things out. But let's also admit there can be a negative side to it?

EA: Absolutely, yes, because we could be missing out on major parts of our social world or just profoundly misunderstanding the nature of our social world, and that can lead to major problems in how we navigate our way through it and how we treat other people.

SC: I wish I had this word or concept available when I was talking to Paul Bloom, the psychologist at Yale, he's written this wonderful book on being against empathy. He thinks that empathy is a bad idea because we tend to empathise with people like ourselves, and I was trying to say that the response to that should be to empathise with people not like ourselves, because otherwise we get trapped in this ideology where we think about the world in terms of what's happening to people like us. And it would be nicer if we could make more of an effort to think about what's happening to people very much unlike ourselves.

EA: You know, I think what you just said is really beautiful, and I wrote a paper about this last year called *The Epistemology Of Justice*. And what I argue there is that there are no boundaries to empathy. The natural object of empathy is any being who is able to have suffering or joy. You can even project that on to an inanimate object like a stuffed animal. In movies, you know it's fiction, but your heart goes out to the characters if they are really compelling, and those emotional reactions can break through ideology.

SC: That's interesting. One of the other things I wanted to discuss before we dig into the nitty-gritties of your work on equality is this idea of doing historically and economically informed philosophy. You're not just working from your armchair. How conscious is that choice and how weird is it within the profession?

EA: It's absolutely conscious. Let me tell you where I got it from. I was an undergraduate at Swarthmore College studying philosophy, and I was an economics minor. But the most transformative course I ever took was a course on the history and philosophy of science. We studied the history of astronomy and physics from the ancient Greeks to Newton. It was an absolutely fascinating course. We could see how the arguments developed in the context of philosophical ideas

> Often what happens is in different social contexts, we take on different ideologies to navigate that part of the social world that we're engaging with at the moment.

and metaphysics and epistemology. And it made me think, why don't we study ethics that way, and political philosophy? That is, that the philosophy of science is undertaken with engagement to metaphysical and epistemological problems that arise in those other disciplines. Then there are all these puzzles about how could you know? For example, do atoms really exist, or something like this. But these are questions that are suggested by or arising from domains of inquiry and practice outside of philosophy. That was the thing that really excited me, because we could do this in moral and political philosophy too. Where you take your problems from the problems that people actually encounter in their lives, and then start theorising from that. Rather than thinking I'm just going to think in my head and figure out first principles of morality and politics just by sticking to ideas in my head. I think that's just wrong.

SC: That's interesting because I think that philosophy has a much stronger engagement with its own history, with the history of philosophy, than science does. Physicists don't care about the history of physics, but philosophers of physics do care about it. So, you're saying that philosophers of ethics or society should care about not just the history of the philosophy of ethics, but the history of society and economics. That sounds great, but it also sounds like a lot more work.

EA: It is a lot more work, but it's a total blast. It does mean that you have to be a very, very heavy consumer of history and social science.

SC: The final point I wanted to get on the table is this role of ideal theory. The idea that whether as philosophers or anybody else, that one way of thinking about how to make society better is to say, what would the perfect society be, and then how close are we to that and can we move in that direction? And I think that you push back a little bit on that common philosophical mood?

EA: Yes, because how are we supposed to know what the ideal is going to be? We don't even know what the normative categories are going to be a century from now. If you look at the emergence of environmental philosophy as a thing, that's relatively new. But we do have to think about what are our ecosystems going to look like and how should we live with nature. It's going to be an important question for how we organise ourselves.

SC: I would have thought that one of the biggest objections to being ideal theory-focused is that it's a way to paper over some of the real-world structural inequities or barriers in society?

EA: Well, that's also true. Ideal theory can often fail to address the problems before us. The usefulness of non-ideal theory, of starting with the problems that we're facing, is that then we develop categories, concepts and tools that are appropriate for inquiry in our very non-ideal world.

SC: Right. But you brought up a different reason to object to, which is more like a fallible-ism kind of claim that maybe the ideal theory is so far away that we should be more locally centred because we might discover whole new things we need to worry about as we approach the ideal theory?

EA: Or maybe moral inquiry and political inquiry just goes on forever and never stabilises or converges on something because we keep on coming up with new ideas?

SC: I've been a very recent convert to exactly that idea. The idea that there is no perfect morality or political system out there to be found, like there is a theory of everything in physics. It's more a reaction to our present circumstances and trying to make things better. We should think about the moment in our current journey rather than this ultimate imaginary destination.

EA: That's quite right. I want to add that because I'm

not doing ideal theory, it doesn't follow that I don't believe in ideals. I think ideals are really important, but we should treat them as error-prone. But the way we find out whether our ideals are wrong is by living in accordance with them, and seeing whether we like the results. It's that constant learning that we have, learning to live through our ideals, that we are constantly changing them and coming up with new ideals all the time.

SC: That's a perfect segue into what you've been working on for a number of years now. Let's think about equality. I think that you're at a slightly higher level than many of us here. I think as soon as the word equality comes up, the immediate dichotomy that comes to many people's minds is equality of opportunity versus equality of outcome. Do you want a society where everyone has the same amount of stuff, or do you want a society where everyone has the same opportunities to get stuff? You don't want either one of those, but maybe you could say a little bit about whether those are two sensible prevailing notions that we should be thinking in the back of our minds.

EA: I'm not keen on either. Both of them have their flaws. It's not that distributive justice is not important, I do think it is very important. But I want to embed it in a broader understanding of what egalitarianism is about. In my view it's about how we relate to each other. It's about human relationships. So just a sort of a quick note, against a purely distributive understanding of equality, separate but equal. Suppose it had literally been the case that in the Jim Crow era, blacks really got exactly the same material goods that whites did. Nevertheless, the very fact of segregation was inherently an insult and a form of stigmatisation of black people. What it was doing was white people saying blacks are untouchable, they're not fit for social engagement with white people. That's what Jim Crow was saying. So that's why I think you can't just look at distribution. You have to look at the meanings of various practices, and these relationships of stigmatisation and exclusion and marginalisation. These are the way people relate to each other, and that's why I find that fundamental.

SC: It's not just a distinction between economic goods and social goods, it goes a little bit deeper than that. Is that fair to say?

EA: Well, I would say that concerns about distributive justice are going to follow from the demands of relating to each other as equals. In fact, they could be quite stringent demands. Although they wouldn't entail material equality at all times because you're going to basically have a totalitarian system. But you can still put parameters on how big the distance is between the top and the bottom, and those could be pretty stringent. You don't want the inequalities to be so extreme that you have desperate people who are begging mercy from people who have all the wealth.

> "... I think ideals are really important, but we should treat them as error-prone. But the way we find out whether our ideals are wrong is by living in accordance with them, and seeing whether we like the results."

SC: I mean, maybe you don't want that, but we have it, so maybe somebody wants it...

EA: Yes, in our plutocracy today, where Mark Zuckerberg decides what information we get. That is a problem.

SC: But this other idea of equality of opportunity might be considered popular. That's an easier sell in our modern era. How can you argue against the idea that everyone should have equal opportunity?

EA: Well, I'm not exactly going to argue against it so much as question some of its premises. How do we even determine when opportunities are equal? One formulation which is very popular in philosophy is to take people of equal underlying

potential, genetic potential, and structure opportunities in such a way that they have exactly equal chances of achieving, say, certain positions in society or gaining access to certain careers. I do have a problem with that because in its background, it assumes that we should all be happy with a natural aristocracy sort of promoting itself genetically through time. And I really don't want to buy into that picture.

So, I do think it's very important to have open opportunity. And by that, I mean many, many pathways, a choice of occupation, but we shouldn't at all be confident that we have any idea whatsoever how to measure inner merit or inner potential or inner merits or something like that. I don't think we can. Education and society should be seen as the place where people develop capabilities, and we should be focused on developing everybody's capabilities and cultivating multiple-pathway success.

SC: As a non-expert, I want to make sure I understand the most charitable interpretation of the equality of opportunity position. I mean, some people are going to be born better basketball players than others. That's okay. Taller and more athletic people will become better basketball players, but as long as they get the same chance to try out, is that basically the sort of equality of opportunity idea?

EA: Well, you do want to make sure that children as they grow up have ample opportunities to develop their talents, whatever they might be. But you can't say at birth who's going to be the best basketball player. So much of that is a product of development and also of the cultivation of interests depending on who they're around. So that's why I say it's very important to have open opportunity, but we can't really define equality of opportunity, at least not in the conventional sense, as relativised to some background, innate talent or something like that.

SC: And this is also sometimes called luck egalitarianism. Why is it called luck egalitarianism? I was never able to quite suss that out, is it we're supposed to correct for being lucky and unlucky?

EA: Right, so the idea of luck egalitarianism is that people should have exactly equal opportunity and the only inequalities that arise should be things that they either deserve or are responsible for.

SC: Okay. Does being born into a very wealthy family count as luck?

EA: From a luck egalitarian point of view, absolutely it does. I'm definitely not in favour of a self-reproducing plutocracy, so I would share with a luck egalitarian an interest in not giving such advantages to people who have been supposedly well-born in this way. I have a different way of understanding that, in that any society that creates a self-reproducing insulated elite is going to be fundamentally unjust. It'll be oppressive. Why do we even have an elite anyway, in the sense of people who are occupying positions of high responsibility and power? It's because they're supposed to be serving everybody else, but they can't do that if they're a self-segregated, self-perpetuating group.

SC: This does get into philosophical issues of another dimension. I recently talked to Robert Sapolsky, a neuroscientist who traces all the reasons why you do what you do and behave the way you do and the capacities you have, and all of them can be given these reductionistic explanations in terms of biology and genetics and heritage. So is it even logically coherent to separate out, as a luck egalitarian would want us to do, the luck of our situation that we're born into, but then say, let our natural capacities flourish as they will, if our natural capacities are also a matter of luck just as much?

EA: I think in the end, the distinction that luck egalitarians draw between outcomes that are due to luck and outcomes that are due to our choices for which we're responsible, that is a distinction that's being asked to bear far too much weight.

SC: So, it's a free will question in some sense. At some point, the idea would be that we need to assign blame or responsibility to choices people make. And the anti-free will people would say you can never do that, so that doesn't help us very much. I'm just trying to sort of understand all the burdens that the luck egalitarians are placing themselves under.

EA: That's one question that could be asked, but I think there's an even more fundamental question about justice and that has to do with the structure of opportunities. Think about it this way. Suppose you're structuring an athletic competition and will award prizes at the end. Should the first place winner gets twice as much money as the second place winner or a million times as much? That's a question about how you structure the stakes in the competition, and that's a question that arises prior to any question of who is more meritorious, who ran the fastest or whatever. You've already decided it. It's necessary that the infrastructure of opportunities is determined prior

to and independently of any particular individual's performance. So, the question arises, how should you structure those opportunities and the rewards that are attached to different end play? That's completely independent of what people deserve. It exists prior to that. That's where I really think questions of justice and equality, they're at the structural level, not at the level of individual performance or choice. That's like a secondary consideration of who gets what in particular, but prior to that, you have to know what's the structure of opportunities.

SC: Right. And your alternative, you call it democratic equality, is more focused on the social conditions and the relationships between people. Putting equality on those terms.

EA: That's right, and that's going to affect the structure of opportunities. Here's another metaphor. You could think about inequality like a ladder – there are rungs on the ladder and there are top rungs and bottom rungs, and you can imagine different rungs are going to have different widths, depending on how many people are going to be on that rung. You can imagine the whole distribution of opportunities along this ladder metaphor. My point is that how you structure, say, the distance between the top rung and the bottom rung is going to be independent of anybody's choice or merit, or how wide the rungs are going to be. Or whether, say, if we look over time within the United States, since the 1970s, the structure has been ripping out the middle rungs of the ladder and fattening the top and the bottom. But that makes it much more difficult for people at the bottom to ascend to the top because there's no middle rungs to hang onto anymore. That seems pretty problematic.

SC: I have this question about the sort of boots-on-the-ground implementation of your version of equality. If I'm just a cold-blooded redistributionist, I can imagine sending out money to everybody, but you have a more warm-hearted version of equality where we give people equal dignity, and I'm not quite sure how to implement that in practice as much.

EA: Dignity is one aspect of equality, but it's not the whole thing. One way to think about this is just in terms of social theory. Sociologists think in terms of three dimensions of equality or inequality. You have relationships of domination and subordination, like who gets to order who around. There has to be something of that in the sense that, say, within any large organisation, there's going to be a hierarchy where managers are going to be setting some priorities and then telling subordinates what to do. Then you have hierarchies of honour and stigmatisation, and that's a second dimension. And then you have hierarchies of what I call standing, which have to do with how much your interests count in the deliberation of third parties, and especially the state. So, when people in Congress are deliberating about legislation, whose interests do they really have in mind and whose interests do they give weight to? An egalitarian says, we want equality on all three dimensions. Not absolutely strict equality, but we'd like to flatten these hierarchies and make sure that they don't interact in such a way that all three of them are all constantly aligned and rewarding the exact same people.

So, if you think, say, of stigma and honour as one dimension, one useful egalitarian strategy is to proliferate a dimension of things that are admired, and that's what you get in a pluralistic society. Different people value different things, and there's nobody who's a winner on all dimensions, who's both the most beautiful and the smartest and the most athletic and the most pious. You have different communities that value different things. And that's good.

SC: That makes a lot of sense, and it does resonate, especially this standing dimension, with complaints on both the left and right sides of the political spectrum with the current system where people just don't feel like they do have a voice. People just don't feel like their needs are being heard in Washington or in Brussels or wherever it is, and it leads to this kind of populist backlash.

EA: You're totally right about that. Populism is always a reaction to the feeling that one is not being effectively represented in the political system.

SC: But again, how do we bring this about, what laws do we pass to make people more equal along all these dimensions at once?

EA: There are no simple formulas. Instead, what one has to do is examine particular ways in which problematic inequalities are manifesting – to drill down and figure out how is that working. That requires some causal analysis. So, in my book, *The Imperative of Integration*, I'm looking in particular at racial inequality and specific inequality between blacks and whites. And what I argue is that racial segregation, by which I mean the South's segregation of white people where they're hoarding opportunities to themselves, is really a critical and central feature of all three dimensions of racial hierarchy.

> Populism is always a reaction to the feeling that one is not being effectively represented in the political system.

So, you have the hoarding of economic opportunity, which generates inequality of standing. But then when blacks are put into much less advantageous, say, educational settings, neighbourhoods of concentrated poverty, twice as much unemployment as whites for as long as we've measured it – because there's no job opportunities in the neighbourhoods where they live – then people develop stereotypes about them. Which hook into old rationales for slavery. Well, they must not be working hard, right?

And those stereotypes are stigmatising. So, then you get stigma. And also blacks have worse opportunities, and so they're going to be at the bottom of the job hierarchy and taking orders from everybody else, and also politically too. So, all these things are interacting, but segregation really lies at the core. But if you look at other kinds of inequality in society, you might find other factors at work.

SC: This brings us to this other dimension that you mentioned about the who gets to order who around, the domination and submission. You've written a book about private government. I'll let you tell the story, but I guess the story begins with the idea of the free market and Adam Smith and his friends?

EA: I'm trying to explain why it is that stories about the free market are so appealing, especially in American discourse. This gets us back to the question of ideology and the social map we have of the American institutional landscape. We see in political discourse talk about markets all the time, but not really very much talk about the internal organisation of firms or businesses where we work. My argument is that this goes back to the original free-market ideology at the founding of the American Republic, where the ideal put forth that was eagerly taken up by Americans was universal self-employment – everybody stakes out their own homestead or their farm, why do I have to answer to a boss at all? Even today, if you ask Americans what would be ideal, many of them say, I don't want to have to answer to a boss, I want to be self-employed, chasing this dream of self-employment.

Americans have always chased the dream of self-employment, and in that picture, if everybody were self-employed and just working in their own capital, like the Uber driver owns their own car, you can easily see that that could be a plausible picture of how a free society and a society of equals would be the same, because no one individual can work a huge capital stock. An Uber driver cannot be personally driving a million cars. Only one car at a time. So, everyone's basically equal, roughly seen. Back in the day it was farming, but one person can't farm that much, so you'd have broad equality, and we'd all be in competitive markets trading our goods and services, everybody perfectly competitive.

So, you could see everybody would get, in economic theory, in a perfectly competitive market where everybody has pretty much equal capital, we're all going to be facing each other as equals. Nobody with monopoly power. Nobody able to order anybody else around. Everybody enjoying the dignity of self-employment and property ownership. You'd have a society of equals. So that is sort of the seduction of the market ideology. And what I argue is, historically, Americans have a kind of massive cultural lag, in that we can continue to talk as if this market ideal that really was forged prior to the Civil War is still a realistic prospect.

When in fact we live in a world with a very complex division of labour, where we're working in these big organisations called firms. That's a world of bosses and employees. It's a very different world from the free-market world, because then you're in a hierarchy and there are people who are giving you orders. And that I think has been largely neglected in political discourse, what happens to these workers when the boss fires them because say they don't like who your sexual partners are?

SC: Right. The original free marketeers, Adam Smith and maybe even Thomas Paine – the free market they conceptualised included something like a social safety net. They didn't mind it if you

Photograph: Adam Winger

had the equivalent of welfare or social security. That was not something they were against, which might be different than how we think about it in our current discourse.

EA: Tom Paine was the first person to envisage how poverty could be abolished with a universal social insurance system. He actually costed out the universal social insurance system using numbers from the British Treasury and showed it was completely feasible to do this, funded through an inheritance tax.

SC: Does sound very current, these debates.

EA: Now, Paine was a very forward-looking thinker, and Smith too. England was the first country in Europe to recognise care for the poor as a state responsibility. And Smith only had one criticism ever of the Poor Laws, and that was an aspect of the Poor Laws known as the Law of Settlement, which meant that if you needed help, welfare or support, you had to go back to the home town of your birth. And he said, that's really stupid, because it inhibits labour mobility. If your job opportunity is somewhere else, you might be afraid to move there because you wouldn't get any assistance if something goes bad in your life. And he did favour labour mobility, so people could take advantage of opportunities all over the country.

SC: That actually leads right into one of the things that you bring up in your book, which is that there's this myth or story around the modern free market, where if the worker is being exploited, they can quit and go somewhere else. But, in fact, this freedom to exit your job and just get another job in reality is much less in the modern world that we might like to pretend?

EA: Here's something that I learned by looking at labour conditions. Tipped restaurant workers are subjected to extraordinarily high rates of sexual harassment. They're so high that if you quit one

restaurant and enter another restaurant, you're just as likely to suffer sexual harassment, it's so pervasive. So where is a server to go? It's kind of like you're in Eastern Europe, behind the Iron Curtain back in the day when Eastern Europe was all communist. Okay, so you could go from Poland to Hungary, but it's still communist. You're not going to be freer. So, freedom of movement doesn't necessarily help you that much.

SC: And as you point out, we cede to our employers in the modern world an enormous amount of control over our lives. Maybe academics are a little bit privileged here, but this is why the label private government makes sense. You're analogising the control that employers have over their workers' lives to the control that we think should be the provenance of the government, but the firms actually are the ones who are wielding it.

EA: And, in fact, bosses, employers, have extraordinary powers that even the government doesn't have. So, for instance, during the pandemic, you saw a lot of doctors and nurses complaining that their hospitals were not supplying adequate personal protective equipment, and some of them were fired for saying this. The government's not allowed to fire you because you're complaining. In fact, under American labour law, workers are supposed to have rights to free speech, to complain about bad working conditions, but in practice, those laws are not really enforced and are very difficult.

SC: Well, this does bring up the analogous question to before, how are we supposed to change this? I mean, if the Industrial Revolution flipped on its head the idea of the free market to go from freedom of the workers, more freedom of the firms to set prices and things like that, what kind of system or organisation would give workers back something closer to that freedom of movement and choice and living their lives without their bosses telling them what they can Tweet about?

EA: I do think that we could do several things. One thing is to draw sharper lines between workers' off-duty lives and their on-duty lives. So, it does make sense that there has to be some order-giving within the organisation, just to make sure that the work gets done. And there is some degree of open-endedness to the tasks which you can be assigned. So if you're, say, scooping out ice cream cones for customers at an ice cream shop, and a little kid accidentally spills the ice cream cone on the ground, on the floor, the boss has to be able to say, Mary, go clean that up, and that's fine. And I don't think anybody has a problem with that unless it's always Mary that's getting picked on and it's inequitable. You want to make sure there's an equitable sharing of tasks, especially unpleasant tasks. But it doesn't mean that the boss should be able to interfere with, say, Mary's off-duty life, like who her sexual partners are, or her recreational activities or her lifestyle. It's really none of the boss's business how she leads her life off-duty. If she's not performing on-duty, then you can raise some complaints. But off-duty, really, bosses shouldn't have that power. Under American law, though, we have a system known as employment at will, which means that bosses can fire workers for any or no reason at all, with only a few exceptions carved out, mostly having to do with discrimination. But I think there should be stronger protections for workers' off-duty lives.

SC: That actually does make sense. When you put it that way, who could object, maybe, other than the bosses, I guess.

EA: Some of the bosses would object. But it just means that you move closer to an employment regime where the employer would actually have to show cause to fire somebody, 'cause you always wonder, is it that they don't like who I voted for..?

SC: You could see why the bosses would be against that, and probably those bosses have a lot more say amongst the legislators than the workers do.

EA: Sure. And that was something even Adam Smith noted in his day. That the legislators are always listening to what he called the masters, that is the employers.

SC: That brings up the fact that part of this ideology that we have in the Western world, in the US and elsewhere, is the idea of the work ethic. The idea that it is somehow good and valorous for a human being to want to work really hard. And you could clearly see why this might be something that the boss class would encourage.

EA: So, in my research I dug back into the original texts, the founding texts of the work ethic, which was an ethic that was invented by Puritan ministers in England in the middle of the seventeenth century. What I found was that there's really two work ethics that were already there in the mid-seventeenth century and held by the same people – that is, they actually had kind of contradictory views about work. Remember these puritans, they're all advocates of a kind of ascetic

morality, of self-denial, not too much indulgence out there because that's the way of sin. And from that perspective, they saw work as a kind of ascetic discipline. If your nose is to the grindstone then your mind will not wander off to sinful thoughts of lust and so forth. And they also thought that if you work like crazy, that would be your best evidence that you're saved. And if you slack off, that's a sign that you really don't have faith in God, so you'll be damned forever. And that would also make people, out of anxiety for their future in the next life, work really hard. So those ideas tend to incline to a view of work that capitalists can easily exploit.

But there's another vision of work that these Puritan ministers had, which was that work is sanctified, because when you work, you are performing God's will. And what is God's will for humans? That we all work and promote the welfare of our fellow human. And so, work becomes sacred and honoured. And they stress that even the most menial be honoured and respected and treated decently, and paid decently and afforded safe working conditions. And both of those ideas over time get developed into two very different work ethics. One that rationalises the subjection of workers, relentless labour at very low wages. But another that exalts workers and says, you know, we're the ones who are holding up society, we're the ones who are taking care of people and doing all the work. We should get rewarded for that. It shouldn't just be the lazy landlords who are collecting the rents.

SC: I have to ask, but did people not have an ethic to work before the Protestant Reformation? Was this something that would have been unheard of? I would think that some people just felt that dignity, whether or not their theological betters told them to?

EA: Let me illustrate this difference. I do think that the work ethic represents a major revaluation of values. The valorisation of work really was a new thing in the mid-seventeenth century, because before then people valued leisure, and that is the leisure of the independently wealthy. So before then, the dominating value system was that of the landlords, the aristocracy. The best life is the life where you don't have to work.

SC: You want to be the idle rich. That's your goal?

EA: Correct. Yes, and have other people work for you. And the Puritans turn that around. Their favourite metaphor was of a bees' nest. Bees have their own society. You have the worker bees who are doing all the work and making all the honey, and then you have the queen, and then you have the drones. Those drones in the nest, those were the idle landlords, because what are they doing? They're not doing any work and just having sex with the queen. And the Puritans said they should be cast out of the nest.

SC: Got it. It's interesting because there's this parallel, I'm sure it's intentional, or at least it's explicable, between the two notions of the free market and the two notions of the work ethic. There's sort of a worker-centred version of each and a boss-centred version of each.

EA: Exactly right. Tom Paine, who wanted everybody to be self-employed, he's part of what I call the pro-worker work ethic, this is a way to uplift workers. Now they can have freedom and equality if everybody gets to work their own capital and has social insurance so that if they have some kind of accident they'll survive.

SC: So that goes hand-in-hand with modern arguments about should we give social benefits to people who aren't working. Are we removing the dignity of work by making it possible to live and survive without necessarily doing your job?

EA: I just want to insert a feminist observation here. And that is that this obsession that people on welfare benefits have to work is downgrading the value of women's dependent-care labour – taking care of children and ill people within their household. And, in fact, if you look at the history of welfare in the US, before the welfare reform under President Clinton in 1990, and you look at the labour force participation of very poor women, what you find is, is that they were in and out of the workforce. That is the waged labour force. And a lot of that was because they're taking care of children or ill and disabled people within their family, and so they couldn't devote full-time to work because they had dependent care responsibility. Now, if you look back at the original work ethic that the Puritans came up with, they recognised that dependent care work is socially necessary. Children need to be cared for. And so, this obsession that poor women had to be working for wages grossly under-values the importance of dependent care work within the family.

SC: This is all evidence for the point of view that moral and ethical philosophy should be not focused on finding the perfect answer, but responsive to the moment. What we're seeing over and over here is some kind of values are promulgated and absorbed and recognised, but then the system

changes and the words that we attach to the values don't, and so the outcomes become very different. I don't know if it was just the Industrial Revolution or things much, much later that cause some of the problems you're talking about. You mentioned in the seventies, we saw this divergence between wages and productivity, for example, so the 1970s, not the 1870s or the 1770s. So, something is still changing now that separates out the work we do from what we earn from it?

EA: Yeah, so in fact, there's a remarkable parallel between the nineteenth century and recent history from the mid-seventies on. If you look at the beginnings of the Industrial Revolution, there was a period in basically the first half of the Industrial Revolution until right through the mid-nineteenth century, where GDP per capita was just growing very, very quickly, but wages were stagnant. Workers were working harder than ever, but they weren't getting any of the gains. Then around mid-century you enter a period of wage gains, a lot of that propelled by worker mobilisation – both for democracy, get a more responsive government because you have a wider franchise, and also labour organisation. There's a lot of agitation of workers for benefits, and it worked. And what we find starting around the mid-1970s, is a similar divergence take place where GDP per capita is galloping ahead, that is labour productivity is galloping ahead, but workers' wages stagnate. And we're still in that era now. Well, no wonder a lot of people are really angry, especially working-class people. Now I do think contemporary populism has a misapprehension of causes. So, a lot of working-class white people think that what's getting them down is all those immigrants, and it's actually not true. But of course, you can't necessarily blame them in the following sense – I mean, it actually takes a lot of social scientific research to find out social causes, you can't just look out there and see causes. Well, you know that as a physicist. It takes a lot of hard data-crunching to figure out what's going on. But I'm not blaming them for not knowing, because they've been told some bad stories about social causes and what are the causes of their distress. But their distress is real.

SC: To be fair, you make one point which I thought was very interesting, and it's sort of obvious in retrospect, that to the bosses' credit, there's not as many idle rich around anymore as there were. It's not just the workers who are working really hard, but the CEOs these days tend to work really, really hard.

EA: It's unbelievable how many hours they put into their labour, so you might have noticed Elon Musk, when he was called up by some journalist, who announced to him that he was now the richest man in the world, at least for a little bit. And he says, 'Oh, how strange. Well, back to work.' But I do have to say that while it is true that the richest people are working like crazy in the sense that they're working very hard to make a lot of money, it doesn't follow from that that they're working in the original work ethic Puritan sense, where work means actually promoting the welfare of your fellow human beings.

So, if you look, say, at Big Pharma pushing all the OxyContin and other opioids on Americans and turning millions of Americans into addicts. Yeah, they were really, really busy selling these drugs, but this is not productive labour, it's very awful, horrible labour. And so, I think we have to question in many cases, not all cases, but in many cases, how this money is being made.

SC: Because of this idea that the work ethic was originally tied into, or at least in some formulations of it, the idea that you were doing work for some good purpose, for something meaningful. It wasn't just to earn a wage, it's not just that I work hard and I provide, it's I work hard and I provide to society as well, right?

EA: Correct. And what is a meaning fundamentally, it has to be something that's helping other people and not yourself.

SC: Why is it like this? Is it an inevitable thing that happens when society becomes big and complicated and bloated and bureaucratic, or is it a matter of ideology where we just talked ourselves into it? Should we have seen this coming?

EA: I think we've talked ourselves into a lot of things and, in a way, I do see this as a manifestation of this negative work ethic that treats workers very harshly and this internalised sense that so many Americans have that, well, I've gotta be working all the time. And that's a very American attitude. First of all, one thing that's very strange, and I think Americans don't appreciate, is that we're the only rich country in the world that does not by law guarantee paid vacations to everybody. You go to Denmark and everybody gets five weeks of paid vacation, and then a whole bunch of paid holidays on top of that, it's almost unimaginable. And in France, you know, practically everyone takes all of August off and they're paid. Whereas in America, only about half of workers get paid vacation through the employment contract. And the other half don't get any paid vacation, and even if you

look at those who are entitled to paid vacation, most American workers do not take all of the vacations they're entitled. So, I do think Americans could work less. It would be good for us.

SC: Good, and so that is maybe not so much a structural thing as an ideological thing. We've sort of let ourselves be talked into the fact that there is virtue in working hard and not vacationing, whatever it is the job might be.

EA: Well, but I also think that there's a lot of fear of getting fired if we're not...

SC: So how do we make the world a better place? I know that there's been increasing talk about universal basic income, things like that. And I know that there's been pushback against that, both on practical grounds, but also on surprisingly moral grounds or ethical grounds. The idea that it would remove the dignity of work, that if you're not working, if you're just enjoying your life, you're less fulfilled as a person. Is that something we can talk ourselves out of, maybe?

EA: I do think it's very meaningful to contribute to the welfare of others, and wage labour is one place but not the only place to be doing that. There's also dependent-care labour within the family. But often if you want to make a bigger impact, it's helpful to be part of an organisation that extends, that has impacts beyond the family, and there could be something that's very fulfilling about that and very meaningful. So, I'm all in favour of jobs that actually help people. And I think the vast majority of people do find that meaningful. So I don't think we're going to be at a loss for motivation to work, even if people also at the same time get a lot of free stuff. But I don't necessarily think that a universal basic income is the best way to package benefits. I think that requires a deep dive, and looking into the details of different ways of packaging.

SC: So, when you say that, it's not that you're necessarily against it, it's just that this is a complicated empirical social question and we don't know the answer yet?

EA: The devil's in the details. There are so many different ways to package a universal basic income. We really have to see the proposal spelled out in detail and then compare it to other proposals.

SC: But you do make a point that maybe the state that the world is in is one where we're not ready to aim for a leisure society just yet because …You didn't put it in these words. So, let me put words in your mouth and you can correct me. There's too much work to be done, like saving the planet.

EA: I do think that that's right. I don't think we're quite ready for it. Look, I mean, we're facing global climate change at catastrophic levels. We have to roll up our sleeves to get to work on that problem. There's plenty of work to be done. Socially necessary, socially urgent work that we have to do.

SC: Yeah, there's plenty of places in the world that don't have good infrastructure in healthcare and things like that, I mean, there's more than enough...

EA: Well, look, even American infrastructure is falling to pieces without adequate investment.

SC: It's not good. Is it that we're entering a society, the bread and circuses stages of our advanced democracy, or have we just sort of lost our edge a little bit?

EA: You know, I really do worry, yeah, that we're past peak America.

SC: Right, but we're not willing to do the work, to make the sacrifice.

EA: I do find it worrying.

SC: Any advice for making the world a better place? What should we be doing to make the world a better place for work and dignity and equality and things like that?

EA: I think we have to work at improving democracy. And that requires communication with our fellow citizens.

I think the quality of public debate, of political debate, is really bad. There are a lot of insults, trolling, mass shaming. it's very unhealthy and toxic, there are better ways that we have to communicate with each other. And it's only that that will enable us to pull together, cooperate and solve the problem of climate change, the biggest one.

SC: And if I put on my free marketeer hat for the moment, what I would respond is, but what is the incentive structure that would lead to better communication and better political outcomes? I mean, right now, we have a system where you get a lot of clicks and you get a lot of views from saying outrageous things. That sounds like a hard thing to change structurally.

EA: I think the social media companies bear a lot of responsibility for this. There was a study that was reported on in the *The New York Times* about how people are on social media like Facebook, and they're getting almost no clicks because they're just posting on innocuous topics. And then they happen to post on QAnon or some crazy thing, and they don't even necessarily believe, but suddenly they have thousands of followers, and that's very seductive. So they post more and more extreme views and pretty soon they're talking about lizard people, and then suddenly they have hundreds of thousands of followers and they're making a lot of money. I think this is a very perverse incentive structure, and similarly for people who go around trolling and insulting people. I do think social media companies are not behaving well, and the algorithms appear to be structured to reward the worst possible behaviour.

SC: So, this might be a case where the case could be made for reining in the free market a little bit because we need companies ..Again, I'm putting words in your mouth, correct me if I'm wrong. Companies like Facebook, Google, Apple or whatever have so much power and influence, and they got it so quickly in an almost unanticipated way that there's at least an argument to be made for giving them incentives other than just maximising the number of clicks, to make them more responsible social actors.

EA: So, here's where we can come back to the issue of empowering workers within the workplace. What we do find is a lot of these companies have very socially conscious engineers, software engineers, often they don't really like what their bosses are doing. And there's been a lot of pushback within the tech companies on this, and I do think that introducing co-determination at the big corporations, that is where workers have a say in management, could be one way to make these companies more socially responsible. And this gets back also to the issue of meaningful work. Yes, there are some people who all they want to do is make tons of money, they don't care how socially destructive they are. But most people aren't so keen on that. They have an ethical core, they want to be doing meaningful work and not just work that makes a tonne of money even though it's spreading social toxicity. So, most people, if you empower them within the firm, they can move it in a better direction. So, I do think in this case, worker empowerment will probably be one way to solve the problem. Because I don't necessarily think that the government, that is the state, I don't want them necessarily to be imposing regulations, that has dangers of its own. But there are other ways to empower other forces to create better tech companies.

SC: That is good. I like, if possible, to end each podcast on an optimistic message, and I think we finally got there. There were a lot of pessimistic messages we had to get through to get there. But Elizabeth Anderson, thanks so much for being on the *Mindscape* podcast.

EA: It's a pleasure. Thanks for inviting me.

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HOW TO LIVE

Love is a Classroom

ALAIN DE BOTTON
THE GOOD LIFE

Interview by Andrew Leigh
Illustration by Nash Weerasekera

Andrew Leigh: Alain de Botton is the closest thing Western society has to a secular priest. Born in Switzerland, raised in Britain, he's written books on Proust, travel, architecture, religion, sex, arts, the news and love. In 2008, Alain founded The School of Life, an educational company that offers advice on life issues like achieving calm, having better relationships and making sense of a messy world. It's videos with titles like 'How to Get Attention Without Attention Seeking', 'The Importance of Kissing', 'The Charms of Unavailable People', and 'Why You Don't Need to be Exceptional', have been viewed hundreds of thousands of times. His new book is titled *The School of Life*. Alain, welcome to *The Good Life* podcast.

Alain de Botton: Thank you so much. What an honour for me.

AL: Now, you were raised in Switzerland and Britain, what got you interested in philosophy?

AB: Broadly speaking, I was interested in working out who I was, how my mind functioned, and I looked around for tools. And like many bookish teenagers, I fell into the kinds of books that sought to explain both me and the world. That was everything from Hermann Hesse to Freud, to some philosophers. I was the typical – I still remain in many ways the typical – confused teenager asking overly large questions in order to learn how to help myself. It's all for me really. I'm just trying to help myself.

AL: Were there key works in your upbringing that made an impact on you? Do you remember the first philosopher you read?

AB: I remember the psychoanalyst Alice Miller's book, *The Drama of the Gifted Child*. I remember that having a big impact on me. It's a sort of introduction to psychotherapy and how people get messed up by their parents. That had a big impact. I remember reading Freud and being impacted. I remember reading Nietzsche and being impacted. I remember reading Proust and that having a big impact. These are all authors who in different ways, very different ways, gave me a kind of vocabulary for learning to put names onto different bits of my mind and the world, really. And I think that's why we need literature, broadly speaking. We need literature to give us a map of the territory. So that's what it was for me.

AL: You did your M Phil at Kings College and then started a PhD in French philosophy at Harvard, but decided not to pursue it. What caused you to give up what I assume would have been an academic path at that stage?

AB: I think that I love what academics read and the material with which they build their works, but I don't really like the way in which they communicate only with each other, so a very narrow audience in a kind of specialised language. I was always a populist. Some of the people I loved most never got a formal education. I had a formal education, a

> “... it felt very important to be able to build a bridge between, as it were, the world of love and the world of ideas.”

very good education, and I didn't want to lose touch with the people that I loved. I didn't want my learning to cut me off emotionally. So, it felt very important to be able to build a bridge between, as it were, the world of love and the world of ideas.

AL: Not long after that, age 23 you published your first book, *Essays in Love*, which was extraordinarily successful. How does that early success, the sort of Gore Vidal, Joseph Heller kind of early success shape you?

AB: I felt very, very lucky. I was the guy with, and still have, very low self-confidence, and I think that early success just gave me enough encouragement to carry on. I think that if I had 10 years of rejection I don't think I could have taken it psychologically. I felt very lucky. And also success kind of builds up relatively slowly. So, I didn't find myself a star the next day, and for that again I'm very grateful. It was enough to keep me going, not too much to kind of kill me off or make it go to my head. So, I feel very lucky with the way that aspect of things has gone in my life.

AL: Did it help that your father wasn't that impressed by it? He was very successful in business, and to him your success didn't blow him away. Did that bring things into perspective for you?

AB: I don't know. I mean my relationship with my father, bless him, he was a wonderful man in many ways, but he was tricky to have as a father. Some of your audience will have tricky father-son relationships and I'm automatically friends with them because I think anyone who's had a bad relationship with their father, even though the father might have been very different, you've got many of the same issues. So, I'm one of those people. It gives you a special subsection of problems all to yourself. And yeah, I was trying to prove myself, I loved him, I hated him, I wanted him to love me, I wanted him to notice me, all these sorts of dynamics. And what can I say? I think that it was difficult for me to get to a stage where I felt that I'd met his expectations and then life moved on. He died, my expectations changed and, broadly speaking, I'm over that now and I lead my own life. But for a while it was touch and go psychologically. It was a challenge to meet the expectations I'd been brought up with.

AL: One of the perennial themes in your writing is love. You have a concept that romance ruins love. Tell us about that.

AB: It's one of the big things that we teach at The School of Life, how relationships can work, and a lot of the distress in people's emotional life is around love. Next to work, it's probably the most problematic area. One of the weird things about relationships is that the way that we love as adults sits on top of experiences of love that we've had as children. So, in a way, adult love is a process of refinding love, as opposed to merely just falling in love.

We're often not conscious of it, but we make pretty particular choices. One of the big generalisations of love is you can't fall in love with just anyone, nor is one just looking for somebody beautiful, kind and healthy. That's too simple. Often what we're looking to do is to recreate some of the atmosphere of love that we knew as children. And that may be associated with all kinds of, to put it bluntly, suffering. Sometimes we reject candidates in later life for the simple reason that they threaten to love us kindly and reliably, which doesn't feel like love to us, because that's not the way love felt in childhood. So that's why you see so many people going from unhappy relationship to unhappy relationship, and these people have a knack for skirting real kindness because it just feels too unfamiliar and undeserved. So that's very, very sad.

We live in a romantic culture that teaches us not to investigate love too much. We're taught very much to go with our feelings. When people say things like I met this person in a bar, I've got such strong feelings, we're going to get married in two weeks – this is declared very romantic, and it's nothing of the sort. It's just crazy.

AL: As our ancestors would have thought through

much of human history, right? This idea that you clap eyes on someone and then you choose to make a life with them is, as you point out, very comparatively recent in the broad sweep of human history.

AB: That's right. It's recent and slightly reckless. Of course, there were lots of unhappy arranged marriages in history too, don't get me wrong. But I think that this notion that our emotions always guide us to the best thing is a real problem. This is a really big issue at the School of Life. We're built on a psychological, psychotherapeutic, philosophical foundation whereby we think the untrained and unexamined emotion is a dangerous thing. So, when people say things like 'just go with your feelings', we say no, stop, examine your feelings, try and understand them, where are they coming from? Maybe they're not reliable. Maybe we can't trust our feelings.

AL: You're pretty critical of crushes and the outsized role that crushes play in romance novels such as Madame Bovary...

AB: Well don't get me wrong, I understand the pull of crushes. We all feel crushes all the time. We're very easily susceptible to imagining perfect strangers. That's just the way our minds work. But I think we have to be humorously, kindly, generously sceptical of these feelings in ourselves and watch what we're doing with them because it's much easier to hallucinate the answer rather than actually find it. I think the crush is a kind of small but intense example of the romantic culture we live in that's constantly encouraging us to believe that there are total, complete answers waiting for us in our emotional lives, and that we don't have to understand ourselves or work with a partner to try and make love grow – that love is just this thing that just washes over you. But that's really not quite true. And so, The School of Life is founded on this idea that love is a skill, not an emotion, and that it's a skill that you can slowly and painfully acquire. It's not ready made.

AL: So, as an economist I'll often characterise this argument as being love is more manufacturing than mining. What is it that you teach at The School of Life to people who are trying to build that stronger relationship to strengthen a marriage, for example?

AB: In a way what we're trying to teach is self-understanding, and understanding of the other person. I mean, it's fairly easy to be angry with other people, particularly our partners, for not understanding, for not seeing things our way, etc. One of the things we're very reluctant to do is to communicate. We often sulk in relationships, and the sulk is an interesting one because really what it means is that you hope to be understood by somebody without bothering to actually explain what's wrong. This is very, very childlike and it genuinely has its origins in childhood – this notion that the person who loves us should interpret us. They shouldn't listen to us, they should interpret us, and work out the answer. It's a beautiful dream but it's really a dangerous one because no one can be expected to understand anyone else wordlessly and magically. We have to explain, and we can't hold it against people if they don't guess our moods and our intentions.

So, learning to explain, and learning to see that explaining is not an insult, is an important part of it. Another thing that we teach is that trying to teach your partner something, and indeed to learn something from them, is not contrary to the spirit of love. One of the very unfortunate war cries of partners in trouble is love me for who I am. Well that's a disaster. Why would anyone love you for who you are? No one deserves to be loved for just who they are, or they deserve to be forgiven, but not loved. We all need to change and evolve to more love-worthy people every day of our lives. And so, we need modesty here. We need to be able to say there might be things that the other person can teach you and there might be things that I need to learn. So, love is a classroom. That's what Plato saw it as. Plato thought that love was literally a learning experience, that's the point of it. That sounds super unromantic in our modern culture. The notion of kind of getting into a relationship in order to learn, that sounds really weird. But like many things that sound unromantic, they're actually very sensible. In fact, as a general rule, any time you come across something that sounds unromantic, it's probably a really good idea, and every time something sounds really romantic, it's probably a bad idea. It's just a good rule of thumb. So that's what we teach.

Another really good tool for patience is understanding that all a person's strengths, all the things that attract us in a person, things we find strong, are related to a weakness somewhere in their character. So, the person who's incredibly creative is also likely to be maybe very messy. Or the person who's fantastically well organised might be at points dogmatic. These are the bad sides of good qualities. Very often when we're angry with our partners, or just friends or other people, we tend to lock onto the weaknesses and we literally ask ourselves, how did this person ever enter my life? What am I doing with this idiot? It's at that

point it's very important to understand that A, they're not an idiot. And B, there were very strong reasons why you got together with this person, related to their strengths. It's just that their strengths, like everybody's character, are connected up with weaknesses, and it's good to bear the links in mind at moments where we're encountering the weaknesses in a particularly acute way.

AL: My parents commemorated their fiftieth wedding anniversary this year, and it was interesting speaking with them about the sorts of people they were in 1969 when they were first married. You are such a different person 50 years into a relationship that if you don't do the sort of growing that you're talking about, it's almost inconceivable that two human beings can stay together.

AB: That's right, that's right. Sometimes you have to call it a day, and it doesn't have to be a tragedy either. So, I'm not somebody who believes that couples have to stay together forever. However, it's definitely worth seriously investigating the reasons why for some the situation might have grown untenable and trying to do everything one can to try and resolve differences. But as I say, it may not be possible, and some will have justifiable reasons for walking away from a relationship.

AL: It's interesting – you've come up with a couple of points in our conversation about how childhood shapes us, sort of what we think of classically as quite a Freudian frame. Do you think of yourself as coming from that tradition?

AB: Very much so. There's this sort of myth out there that Freud was wrong, and the whole Freudian thing is ridiculous and actually it's not all about your childhood. The bad news for anyone who likes that line is it's not true at all. Of course Freud got a thousand things wrong, but the basic insight, which indeed is not entirely just his insight, it's an insight people have had for a long time, is that the way we function as adults emotionally sits on a superstructure or substructure that was formed in childhood. That is just incontestable, and therefore, many of the dynamics that we're engaged in in adulthood if you seek to understand them you will have to go backwards. You'll have to ask yourself where did I learn about trust? Where did I learn about negotiation? Where did I learn about what my value is to other people, etc. And there are answers, almost always in the early years, between zero and ten. If we're trying to free ourselves from certain feelings, let's say we're trying to change, one of the best ways to change is to go back, understand where a story came from, and seek to change that story. Because what happens in childhood is that we're at the hands of people with huge influence on us who are nevertheless just ordinary human beings and sometimes their assessment of us and the way they set up our expectations is quite seriously skewed and biased in really unfortunate ways. So, there will be people who will have grown up with a sense that they are not particularly good, interesting or lovable people. They will be sufferers from low self-esteem. And low self-esteem is always an internalisation of the esteem with which we were held by other people in our early years. We tend to forget, or start blaming them, or just don't think about them, but the imprint, it's like the shape of a cookie mould in dough. You may not know the shape of the actual mould, but you know the imprint that is left in the character, because every day when you wake up you think I'm a piece of nothing and my life is worthless. Those voices didn't come from nowhere, they were the voices of somebody else that were internalised.

So, we have to do some very patient excavation and test our inner voices with the voice of reality. We do a lot of work, psychotherapists call it transference, and transference is the transfer of an emotion that was generated in our early years in a particular context, and it's the position of that narrative onto the modern world, the adult world, in places where it doesn't necessarily belong. So a classic example is you're at work with somebody, let's say you're managing somebody at work and you say to them, 'Look, I really like your piece of work, but I wonder if you could, just at the end, add another paragraph because then it would be better.' And they flare up, and they go, 'Why do you never respect me?' You go, 'Whoa, I do respect you, I just think we need to change-' And they go, 'I can never do anything right, can I?' And they storm out of the room. Now what's going on there? First of all, it's showing us that there are problems in the workplace – this is a big thing that we do at School of Life – there are emotional problems as much as there ever are technical problems.

We bring a lot of our characters to work that were formed in our early years. But what's often going on there is that somebody is carrying around with them a sense that they're under attack all the time by people, and that somebody is not interested in their wellbeing and survival. So, whenever somebody in the modern adult contemporary world comes along and says something, like hey do this, or what if we thought about it this way, they're not hearing reality, like other people. They're hearing you're a worthless idiot and I don't

Photograph: Ryoji Iwata

believe that you deserve to exist. So it's no wonder they flare up. A so-called defensive person is somebody who reads attack everywhere and the reason they read attack everywhere is that they were attacked very severely at a time before they understood how to master the situation, and where the tools at their disposal were really primitive, all they knew what to do was to punch back. What you have to try and tell these people is the past is the past, the present is the present. You have to separate out the two and, in a way, feel sad for yourself that you learned to punch back with such viciousness. But see that that isn't necessary in the modern world – because you're an adult, and that all belongs to the painful job of maturity, to be able to unstick the past from the present and to put emotions where they belong, and no longer to get angry with your boss when really you were enraged with your father. I know it sounds simplistic, but some of the rules, some of the ways in which our psyches work are at least in their structure quite simple, easy to understand, but nevertheless they can ruin our lives.

AL: You have a section of your new book which talks about the self-help genre, and I know in the past you've distinguished between what you do and what people like Tony Robbins do. Let me read you one of your favourite Tony Robbins quotes, and you can tell me your reflections on it. Tony Robbins writes, 'I discovered my power, and used it to take back control of my physical wellbeing. I permanently rid myself of 38 pounds of debilitating fat. Through this weight loss I attracted the woman of my dreams. I then married her and shortly after created the family I long desired. I used my power to change my income from subsistence level to over 20 million dollars a year. This moved me from a tiny apartment where I'd been washing my dishes in a bathtub because there was no kitchen, to my family's current home, the Del Mar Castle, worth 65 million dollars.' So that's an approach that Tony proposes which allows us to step beyond the constraints of our childhood. What's wrong with that?

AB: I think that passage, though very well meaning, is humiliating for a lot of people, because it ramps up the pressure almost unbearably on people. I believe that change is possible. I believe that you can move through problems, etc. Do I believe that everybody's capable or indeed should amass a fortune and imitate the career path of Tony Robbins? I don't think that's necessary or important or indeed sane. So I think that the notion that we can make our lives totally perfect is in itself a rather

imperfect and cruel philosophy, and I think that part of what makes American life difficult is that Americans believe in the perfectibility of human nature, and they get very, very intolerant whenever they come across evidence of that not being the case. It's a breeding ground for intolerance.

So, at The School of Life, we're very careful that we are a self-help organisation, to say no life is ever perfect. Unhappiness will still exist forever, a certain incompleteness is normal, melancholy is part of the deal. These are not messages of defeat, they're messages of compromise with reality, which we all need to do in order to have a sane life. I'm not just being a gloomy English guy. It's important to have a philosophy that correctly adjusts itself to reality.

AL: I played my 12-year-old your sermon on pessimism last night because I thought it would help him put some of his school issues into better perspective. It's a lovely talk drawing on the stoics to think about what it is to have a little bit of dark in a good life.

AB: The stoics are a fantastic group of philosophers from Ancient Greece and Rome. One of the things that they have to remind us is that a lot of your happiness or unhappiness in life is dependent on your expectations, on what you think is normal. Very often our sense of normality has been played around with and is deeply unrealistic, and so a lot of anger is a result of frustration that we haven't budgeted for and that we don't think is in some ways normal. Think of the guy who shouts every time they get into a bit of traffic on the way to the airport, they're screaming away because they're somehow imagining a world in which the roads are mysteriously traffic free, and whoever gave them that promise, or if you shout every time you lose the house keys, you're basically suggesting that house keys never go astray. That's not the reality that was promised to you. So, there's a lot of misplaced anger because there's a lot of expectations out there that are not quite right. So, broadening our picture of reality – our life is not endless, everyone we love will frustrate us, our children will need to disrespect us at a certain stage in order to develop the energy to eventually leave us and start a life of their own. This is all part of reality, and therefore not something to kick against in a kind of ill-tempered way.

AL: You're one of the most sophisticated thinkers about the role of religion, coming from the standpoint of an atheist, and your book in praise of religion makes the points that sometimes what we need isn't the latest and deepest philosophical insight, but to be reminded of simple truths about how to live well. How has the process of writing *Religion for Atheists*, shape how you engage with organised religion and with critics of organised religion like Richard Dawkins?

> "we need to be able to feel small every now and then. Not to be made to feel small by another human being, because that's quite unpleasant. But to be made to feel small within the larger order of the cosmos."

AB: I'm an atheist, I'm a secular person, religion has never been something that I've practiced or been drawn to. Nevertheless – and I came at this really through psychology rather than an interest in religion – I can't help but observe that a lot of what makes modern life difficult for people are things that are missing, that religions used to be quite good at doing. Things like reminding us of the importance of community, binding us together around the shared admission of fear and vulnerability and dependence – that's disappeared. We live in fiercely individualistic times where it's yourself and your career and your love life, that's what matters, very narrowly defined. I also think that religions were very good at putting us in touch, and I'm going to use a fancy word – transcendent, putting us in touch with the transcendent. In other words, things that transcend human beings, that are bigger, older, wiser, nobler, more dignified. They regularly put us in touch with that. In the process, what happened was we were relativised, so that the human world was seen to coexist among the world of divine forces which was

infinitely more magisterial, more impressive than anything that humans could come up with.

We now live in very much a human-made world, and we see ourselves as the measure of all things. That drives us mad because we're all jostling and competing and trying to assert ourselves in this sort of human ant hill without taking a step back and appreciating that we live under a broader cosmos. I should say, that's part of the reason why people nowadays value nature so much, and the experience of the natural world, is because I think people get a little bit of what used to be available within religion which is this experience of something larger, more mysterious and awe inspiring.

If you want to put it like this, Andrew, we need to be able to feel small every now and then. Not to be made to feel small by another human being, because that's quite unpleasant. But to be made to feel small within the larger order of the cosmos. We don't do that very often. You mentioned news. We're constantly being told to keep up with the news, and the news is always the achievement or some horror story of another human being somewhere on earth. What we don't hear enough of is the news either from things that transcend us, or the news from inside our own hearts. And a lot of what we need reminding of are not strangers and terrible things from the other side of the world, it's really truths that we've allowed to go dead inside our own minds, but that are very important. Things like your life is short, what are your priorities, what is important to you? To learn to value our own kind of knowledge and insights.

It's striking to me always how seldom most people spend time on their own. We do everything other than spend time in our own minds. Even if we're alone we get distracted by the phone or by something, but we very rarely interrogate and make friends with our own thoughts, largely because those thoughts are often quite scary, but we should. It's really important. It's so useful.

AL: I want to come to the news in a moment, but first before we leave religion, you have some fascinating insights on a number of religious traditions – fasting, pilgrimages, confessions. How do you think some of these religious traditions can be part of a good life for a non-believer?

AB: I think the fact that religions did certain of these things should always set us thinking, what were they after? Take a lot of the religions of the East – they were very interested in getting us to sit in a certain position, breathe in a certain way, and have a cup of tea. That's kind of odd. Why is that? They knew something that we've allowed to slip through our culture. They knew that the body and its posture is hugely important to the contents of your mind and the outlook of your mind, ditto with breathing. And that food and drink has a role to play again in shaping your world. Religions knew that a journey in the outer world can be very important to spurring a journey in the inner world and cementing a journey in the inner world. And that's what the whole notion of a pilgrimage was. It was precisely you needed to move forward inside, so you orchestrated a journey outside to do that.

We're not so clear about what we're trying to do with many of our outer journeys. You don't get asked at the Qantas desk how you're intending to move your life by heading off to Europe or something. And yet maybe that should precisely be what we keep in mind as we write in our journal on the long flight over. Also, religions are very good at bringing people together, and at breaking the barriers down between strangers. Nowadays, we constantly hear that Sydney and Melbourne might have a vibrant night life. What does that mean? We don't meet strangers. People don't talk to each other in the large cities of the modern world. We may go to a bar but the chances of striking up a conversation or really opening our heart to a stranger are slim. We live in a lonely world. We have built a very lonely world, even without realising it, and again, looking at how religions function can just alert us to some of our forgotten needs. And the answer isn't to go back to religion, I think it's to learn from religion and invest some of the lessons from religion in the secular world.

AL: Yes, I'm often struck by what you can achieve, if you're speaking to a large group of people, when you give them a moment to introduce themselves to somebody they haven't met before. The odds are that they would have otherwise walked out of that room without ever meeting a new person. So, you can fundamentally change their experience of being in that room by that simple act. But it's entirely a religious tradition, that moment in church when that minister says now turn to the person next to you and say peace be with you, and everybody chats to somebody new.

AB: Now at The School of Life, just to frighten you, we do a version of this, but we take it one step further. We say explain to a stranger one thing that is troubling to you, that is making you sad, that you regret or are ashamed. And so often in life, we imagine that what will win us friends is to be impressive and to be fantastic and flawless and achieving things. What we don't realise is that the only way really in which humans bind themselves together is by a revelation of their mutual

dependence, vulnerability and fragility. And what makes you friendly with somebody ultimately is always when you dare to make yourself vulnerable. It feels dangerous, and in a way it is dangerous, but it's the only way. If we're not going to be alone, that's the way that friendship begins. So, we like to create the kind of safe space where that is done, and almost kind of mandated, and the results are beautiful.

AL: Now perhaps your most prescient book was the 2014 title, *The News: A User's Manual*, published a full two years before Donald Trump took the White House and managed to blow out the news consumption of every hard-line conservative and progressive on the planet. How should a thoughtful person build news consumption into their lives?

AB: I think, ultimately, our primary responsibility is to ourselves and those around us, and that we are able to have a massive impact on them. So, I think that we should invest our curiosity and our energy in people. Let me paint you a kind of desperate portrait. Imagine a family where the two parents, let's say there are two parents in the house, and they're very upset about Brexit. They're all lamenting how awful Brexit is and how terrible everything is. Meanwhile, they're neglecting two children who are full of curiosity, who are full of energy and insight and the potential to shape the world. Now I'd like to say to them, guys, weep about Brexit like the next person whenever you want to, but don't use this as an excuse for neglecting your own life, or neglecting the responsibility you might have towards the people around you. We are all capable of a massive impact. When we say things like I'm powerless, I can't impact …yes, you're not the prime minister, of course you can't impact at a mass scale for that level. But all of us, even the so-called least powerful, have great power. It could be over a parent or over a child, or over a co-worker, or over a friend. We all have the capacity to determine the lives of others in the way that a president might. A president can do it times a million, or times a hundred million. But we can all do it at lower but still real increments. We should use that power and not use the knowledge that we have of the problems of others and the dilemmas of others to distract us overly from an engagement with the lives around us. I think that's the danger of the news, that it makes us jumpy and sad about things that we simply cannot alter, and that is wasted energy.

AL: Conversely, how do you see us being able to better incorporate music and art into a good life? Do you have tips as to how to consume art in particular, which I think many of us find a little daunting?

AB: The first thing we need to recognise is that art and culture are tools. They're not things that you need to pass an exam, or impress the neighbours, or to sound fancy. They are tools. Just like a saw or a hammer or a bucket is a tool. So, art is a tool. You need those tools to solve certain problems at some points. The way to think about art, for example, is when you're a kid, your parents maybe at some stage say you can decorate your room. You start looking around you and you go okay, how can I decorate my room? Let's say you like horse riding, so you put up a picture of a horse, or you like motor sports, so you put up a picture of a formula one car, whatever it is. But decorating the room is the beginning of your love of art, because what it's doing is showing you how pictures and objects can help to reinforce the things that you love most in life and in yourself. They are tools of self-definition, and self-enhancement. You might ask, well what does that have to do with walking around the Louvre Museum when you go to Paris? Let me explain. Our engagement with art and museums should follow exactly that pattern. We should be drawn to, and deepen in our engagement with, works of art that speak to us and we should use them mercilessly. Let's imagine you see a picture of a field painted by some guy in the nineteenth century. Buy the postcard and think about why you like it. Maybe you like it because it's reminding you of moments in your life, maybe straight after university, when you had time to engage with nature. Maybe you've drifted away, you're no longer quite that person, but something about postcards brings that mood back to life. My advice is, that means that that work of art is capturing an important emotion, is bottling it as it were, and you need to put that postcard where it matters, maybe on your desk, maybe on your fridge door, wherever it is, as a constant call to be more the person that that work of art is inviting you to be. So, I'm arguing for a very intimate relationship with works of art. These are not distant grand objects that belong to kings and that's the end of the story. They are objects that you should use with the same level of naturalness as a kid decorating their first bedroom. That's what works of culture are really all about.

AL: Do you think we should change the artworks on our walls more frequently? I'm often struck by the fact that art that spoke to me when I first got it no longer seems to have much of an impact on my soul six months on.

AB: Why not? One of the great questions is why

are we drawn to certain works of art when we're drawn to them? Why do people have such different tastes in art? I think that our taste in art is a guide to what's missing from our lives. So, if you have a very stressful life that's full of too many meetings and too much agitation, you may be very drawn to some empty interiors, or shots of a beautiful empty church in the morning, or something like this. But let's say your life is too routine, lacking in passion, lacking in a certain intensity, you may be drawn to some very vibrant prints from Peru or something, because that's putting you in touch with an energy and a kind of vibrancy that you need. Now that may change over your life. The things that are missing in us change over time and therefore the works of art that are often the bearers of those missing ingredients may also legitimately need to change with time.

AL: I have to ask you on the musical front, what makes Peter Gabriel pop music for grown-ups?

AB: I should explain that Peter Gabriel is someone who came to speak at The School of Life, we were very fortunate to host him a few years ago, and he spoke very interestingly about all sorts of things.

AL: And the talk is available on your website and highly recommended...

AB: That's right. I think that he's somebody who has felt very deeply. He's suffered deeply, and he's felt very deeply, and I think that what we catch in his music is somebody who understands pain, but is ready to put that pain in a really broad and uplifting and consulting kind of context. So, if you think about the wonderful song, *Don't Give Up*, that he wrote many years ago now. It's a beautiful song for anyone who's just maybe close to suicide, maybe close to despair, it's channelling a voice that maybe we're not capable of creating for ourselves at that time. We need it, but we don't know how to speak to ourselves in that moment, and it's at that moment that music can come along and say I'm going to supplement that voice. I'm going to be that voice for you because our own capacities to generate a more optimistic and compassionate voice have run out of steam.

AL: Yes, I'd put Nick Cave in the same category of singer who is just extraordinarily... he has an extraordinary depth of lyricism.

AB: Definitely.

AL: Let me ask you, Alain, how do you do your work? Do you have particular routines that you employ as a writer? Do you have a special writer's garret, are you one of these people that has to get up and listen to certain pieces of music and do all your work between five and six am? How do you do what you do so impressively?

AB: I think that's a very good question. Ultimately, I try and understand why I write. And the reason I write is to sort out ideas that feel vital and emotionally rich to me at that time. One of the good things, if writing is not going well, rather than force myself to keep doing that bit of writing, I often say to myself 'what's actually really a problem now?' And can I write about that? So, I'll drop whatever I'm writing and start something new that's more closely aligned with what is actually paining or delighting me, because I think both pain and delight are the sources of motivation in writing. Writing is a desire to interpret emotions for me, and so it's just about trying to identify what the emotion is. I think writer's block is literally just a moment when you don't really understand yourself well enough. You're trying to give birth to an idea but it's not ready yet, it's not ready to come out. So, you've maybe just got to wait or try and find something else that is nearer to gestation. I think if you're hitting the right spot, if you've identified the thing you're trying to work out, then writing comes anywhere. You could be on the back of a bus, it could be the middle of the night and you're just writing on the back of an envelope, it doesn't matter. So, the setting doesn't matter, the context doesn't matter, none of that matters. The only thing that matters is have you hit a rich emotional seed inside you? And if you have, it's just going to work. And if you haven't, it's just not going to work.

AL: So do you find you have long periods of fallow and then you hit the seam and then you're just writing constantly for a number of days or weeks?

AB: It does work like that sometimes. Or I've just learned to drop things and move on to other things. Often, I have a lot of things on the go at the same time and something's just not ready, so I'm like a cook with many things on the hob, and something may be ready in a year when I have further evolution. I was trying to write a book about religion for years, it took something like 20 years. So, the moment a book is written can be very far from the moment the first itch comes along.

AL: Can you share with us some of the things that are on the hobs at the moment?

AB: I now do a lot of my work via and through The School of Life. We've got this thing called *The Book*

of Life, which is our kind of blog. We also have a little publishing house called The School of Life Press, and we do a lot of books there. So I'm writing a cookbook, isn't that strange? About food and ideas, food and feeling, food and emotion. Really, it's about the body and our relationship to it. I'm having a great time with recipes and putting that all together.

AL: I also want to ask you about responding to criticism. The famous incident a decade ago when you wrote a response to a negative *New York Times* review: 'I will hate you until the day I die and wish you nothing but ill will in every career move you make.' I thought the review was pretty unfair, I thought you were very gracious in apologising afterwards, but I'm curious what that incident taught you about how to respond when we're attacked, with the benefit of a decade's hindsight?

AB: Well of course what you realise with social media is that something you do in five minutes is going to be around forever. People mention it when you die. It's crazy. It's like imagine if every conversation with your partner was being recorded and broadcast, and something you say in the heat of the moment literally becomes immortalised and seen as kind of the essence of you. There's no point in complaining about it. That's the way the world works. So, basically, don't go anywhere near social media unless you're prepared to stand by that for years. It's a very hard rule to live by, and I think none of us entirely do. But it's a chilling reminder of how digital footprints follow you around. To come to the broader point, I think that it's impossible not to care what other people think and be a responsive human. The advice people give, like 'grow a thick skin' – how can you grow a thick skin and do what you do? The reason why writers are all so thin-skinned is because that's what they get paid to do. They get paid to have gossamer-thin skins, because how could you write well and be an elephant? You can't. It just doesn't go together. So, I think, my advice to people is hold onto your thin skin, because it's also plugged into some great things about you. However, be careful, because people will use it against you.

AL: Alain, you've moved increasingly in recent years from being a writer to being an entrepreneur in setting up The School of Life. Do you see that evolution as continuing? Do you see yourself being much more a teacher and a manager in the decades to come than being a writer?

AB: I'm always first and foremost a writer. The question is how I do it and in recent years I've had amazing fun, I'm putting together a fantastically talented group of people at The School of Life. We operate around the word, and these are great people and they do a fantastic job, broadly in psychotherapy – that's what it is. It's helping people by sharing insights, talking to them, and helping them to move on in their lives. I do a lot of the writing and intellectual work to get that ball rolling, and it's fantastic. For me, it's a hugely creative way of life. I now write a lot of books not under my own name, but under The School of Life imprint, and it's liberating to be unselfconscious and spontaneous and free in a way that it's sometimes hard to be if you're the only guy on stage.

I used to have a big ego, by which I really mean a small ego that was looking to get bigger, and now I'm older and a little bit wiser, and I don't really care. I've been on stage – I was at the Sydney Opera House, I did something like four events in two days, sell-out events, and it was an extraordinary honour and privilege, but I remember coming away and thinking right, I've done that. Any narcissistic bit of me that needed the applause of wonderful strangers is exhausted. I don't mind if I never see an audience member again. That's not to be ungrateful. It's just I moved on, I outgrew that. But that's not who I was when I was a younger person. When I was younger, I needed applause. I needed to get a sense of the love of strangers. I don't feel the need for that anymore. Indeed, I love being a much more private person now. So, I love working with colleagues at The School of Life putting together a really fascinating and interesting program and I hope it can continue.

AL: Alain, what advice would you give to your teenage self?

AB: To my teenage self, calm down. It might be okay, and even if it's not, it will be okay anyway. There will be time to get the stuff done that you want to do, and like yourself a bit more. That's what I would say.

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

AB: What did I used to believe? That I had to be worried about everything all the time, and I don't necessarily believe that's true.

AL: What shifted your view on that one?

AB: I came to understand that I was brought up in an atmosphere of catastrophe, and I came to realise that atmosphere was not necessary, and

that the whole point of being an adult is that you can deal with catastrophe. It's not that catastrophes don't happen to adults, of course they do. But that you can deal with it. So, I think I learned to be a bit more resilient. Resilience was lacking. One of the things that good parents do with kids is soothe them. When a baby's screaming and it seems like the world is collapsing, the baby will be soothed and will learn a hugely important lesson about life. I think that probably a lot of us, maybe whole societies, need soothing. To be told that it can be okay, we'll get through this, and even if we don't, that will be okay too. We lack that soothing voice. It's something that feels very important to me and something that I try to correct in my own work and life.

AL: When are you most happy?

AB: I'm most happy when I understand something new that was puzzling me and that suddenly becomes clear. That's gold dust for me, that's so exciting. That something previously dark opens itself up. That could be in the course of writing, but it could also be with somebody else. If I'm in a conversation with a friend or even a stranger, and something becomes clear, it's a beautiful moment. So, connection and understanding are, for me, the real luxuries of life.

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

AB: Use up massive amounts of empty time, so-called empty time. So free time, time without commitments to other people, is a vital part of my kind of mental hygiene.

AL: Do you have any guilty pleasures?

AB: Like many people I eat a bit too much. So, I do love food, I love chocolate, I love cakes and pastries and these sorts of things.

AL: Working on the recipe book can't have helped.

AB: No, it can't have helped. No, it didn't. So, I do love these things, and yeah, it's bad.

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

AB: Living an ethical life, living a thoughtful life – it's probably my friendship with a wonderful Scottish Australian colleague and best friend of mine called John Armstrong, who's based in Tasmania. He's part of The School of Life team and we do a lot of our work together, and my friendship with him has been absolutely vital to giving me courage, giving me support, but also opening my eyes to so many thoughts and ideas. Some of us are lucky in life to hit upon somebody who really makes the big, big difference, and the day I bumped into my friend John was very much one of those.

AL: Alain de Botton's new book is *The School of Life*. Alain, thanks so much for taking the time to appear on *The Good Life* podcast.

AB: Such a pleasure, thank you.

The Good Life

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Founders, Community and the Hunt for Talent

SAM ALTMAN
CONVERSATIONS WITH TYLER

Interview by Tyler Cowen

Tyler Cowen: If we read the tech press, what's the single most likely misconception about venture capital they're going to have?

Sam Altman: That venture capitalists are, on the whole, smart visionaries who know exactly what's going to happen in the world. I think the way you become really great at venture capital is to accept that the only way to figure out the future of the world is to identify incredibly talented, smart, creative, original thinkers and back those people. You have to trust that that will work out over time. You can't just be the smartest person all the time.

I have become so convinced that the only thing I have to do – that my firm has to do – is find the smartest, most talented people in the world, discover those people and enable them. Make bets on them as people and trust that they will, over time, drift towards the right ideas and the right kind of businesses.

TC: Let me play venture capital sceptic, and you can talk me back into optimism. Tech has had a stream of big hits: personal computer, internet, cell phone, mobile. You've had a lot of rapidly scalable innovations become possible in a short period of time. We're now in a slight lull. We're not sure what the next big thing is, or when it will come. Without that next big thing, won't the current equilibrium require a higher rate of picking the right talent than venture capitalists are, in fact, able to do?

SA: I will talk you out of that one. The most expensive investing mistake in the world to make is to be a pessimist, and it's a common one. I think that's actually the most common mistake to make in life. It is true that we are in a lull right now, but it is absolutely, categorically false that–unless the world gets destroyed in the very short term–that we will not have a bigger technological wave then we've ever had before.

TC: Why can't I be an optimist but not an optimist about venture capital? I think new ideas will come through established companies. They'll be funded by private equity. They'll happen in China. But the exact formula where you can afford to make so many mistakes because the hits are so big–to what extent does venture capital rely on that kind of rapid scalability that may not come back?

SA: It does rely on that, and that's why the industry came about at a time when software happened. Software is very unlike any other good because the marginal cost is zero and networks are so powerful. It's always tempting to say that about the big companies in any industry–that you're never going to compete with them. They will be the big ones forever. It is also possible that the next set of companies, the next set of $100 billion start-ups are all going to be synthetic bio companies, or nuclear fusion companies, or whatever.

But the big companies in any moment always look like behemoths that you will never be able to compete with and, 10 years later, it always looks so obvious about how they got beaten–or 20 years later or whatever it is. It does feel to me, this current generation of tech hyper caps, I'm almost willing to say this time it's different, but I know in my heart that there will be technological change that will happen at a rate that the companies can't do or require a level of risk they can't take. It has been a bad bet to bet against new companies for centuries, and I think that will keep happening.

TC: Why is being quick and decisive such an important personality trait in a founder?

SA: That is a great question. I have thought a lot about this because the correlation is clear: that one of the most fun things about our company is that, I think, we have more data points on what successful founders and bad founders look like than any other organisation has had in the history of the world. We have that all in our heads, and that's great. So, I can say, with a high degree of confidence, that this correlation is true.

Being a fast mover and being decisive–it is very hard to be successful and not have those traits as a founder. Why that is, I'm not perfectly clear on. About the only advantage that start-ups have, or the biggest advantage that start-ups have over large companies is agility, speed, willingness to make non-consensus, concentrated bets with incredible focus. That's really how you get to beat a big company.

TC: Do you think you're as good at spotting upper-middle-class intellectual talent as superstar founders?

SA: If you look at most successful founders, they are pretty smart, upper-middle-class people. They are very rarely the children of super successful people. They are very rarely born in real poverty. They are very rarely the absolute smartest people who otherwise would win a Fields Medal. They are never dumb, but upper-middle-class, pretty smart people that have grit and drive and creativity and vision and edge and a different way of thinking about the world.

TC: People who perform extreme physical events–climbing or physical strength or running or marathons–as personality types, how do they differ from founders, if at all?

SA: Not so much. A surprising number of YC's (Y Combinator) best founders are also into some sort of extreme physical something. Something about focus and determination and drive to win and perform at your highest level. I think one thing that is a really important thing to strive for is being internally driven, being driven to compete with yourself, not with other people. If you compete with other people, you end up in this mimetic trap. But if you're competing with yourself, and all you're trying to do–for your own self-satisfaction and also for the impact you have on the world, and the duty you feel to do that–is be the best possible version you can, there is no limit to how far that can drive someone to perform. Even though it looks like athletes are competing with each other,when you talk to a really great, absolute top-of-the-field athlete, it's their own time they're going against.

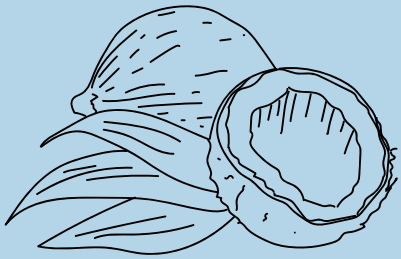
TC: What makes you a good poker player?

SA: I played a lot of poker in college, and I think I learned more about life and business from that than I learned in college. I would not say I'm a great poker player, but I'm pretty good. The thing that makes me, I think, good about that is getting good at quickly evaluating risk.

TC: I'm from the Northeast. When I watch racing cars, I see a bunch of little things on TV go around and around the track, and I'm totally bored. What am I missing?

SA: It's not that fun to watch, but it's very fun to drive. There are very few activities that are high enough adrenaline to totally stop thinking about work, and racing cars is certainly one of them. But watching it is not that fun.

Why good people turn bad



BETHANY MCLEAN
THE KNOWLEDGE PROJECT

Interview by Shane Parrish

Shane Parrish: Talk to me a little bit about the information gap. We are awash with information today, and so it is interesting for me to hear you point out that there's a gap in information, because we think the information is everywhere, it's available to everybody in real time. Information is no longer an advantage. Talk to me about your experiences with that.

Bethany McLean: Certainly, years ago sceptical information didn't leak into the mainstream of the business world. I found that in covering business all these years, there's a weird 'three monkeys' thing that prevails: hear no evil, see no evil, speak no evil. In politics you can get two sides of every story pretty easily. In the business world, you can't, because scepticism about business tends to travel in a very small circle. Companies won't speak ill of their competitors, at least not publicly, or very rarely will they. Employees can't speak publicly without being fired from companies. So, there's this odd veil over the information that you most want to know. So, I think there are two forms of information gap. Sometimes the information you most need to know just isn't out there in that sea of information, or it's much harder to find than the information you don't really need to know. Then some component of it is just perspective. Everything is the prism through which you see it. Sometimes there's this moment where you see the information differently, and all the pieces fit together in a puzzle that is very different than the one you had seen before.

SP: You've spent a lifetime studying how otherwise good people end up doing terrible things. Talk to me a little bit about what you've learned.

BM: I think about that a lot, because when I started working on the book about Enron with my co-author, Peter Elkind, I had this very simplistic belief that if bad things happen, then bad people did those bad things deliberately. I remember being completely shocked when I'd call people up who worked at Enron by the widespread lack of knowledge about what was really happening at the company. Some of that goes back to the belief we all have, particularly from inside an institution with a really powerful culture, that it's really hard to add up the pieces and see them differently. I've really come to believe that very few white-collar crimes or stories of businesses gone wrong are done by people who deliberately set out to deceive other people. Usually, it's this odd mixture of rationalisation, arrogance, some greed, yes, but usually greed in service of ego rather than material greed. Greed in the service of making me feel like a bigger person, rather than greed for material things, but I find that a lot more interesting. It'd be really great if you could find that crystallising moment where everybody decided to do the bad thing, but those moments don't usually exist, it's usually much more of the slippery slope argument.

SP: Can you expand a little bit more on greed in the service of ego and maybe how the company's culture plays into that?

BM: I think it's less the company's culture than it is comparisons with other people in one's stratosphere. I thought, not to pick on him, but *The Financial Times* did a really good interview with Lloyd Blankfein, the former CEO of Goldman Sachs. Blankfein said in that interview that he

didn't consider himself particularly well off. I thought because his reference group was other people with hundreds of millions of dollars. In that narrow stratosphere, it becomes about, 'Well, he has a private jet and a private island, and I only have a billion dollars and he's got $2 billion, so I'm not particularly well off.' It's just about comparing your balance to those of other people so you can feel bigger than they are. That's what I mean by greed in the service of ego.

SP: So, is that something innate in us? Is that a biological hierarchy instinct that gets fed as we get more and more successful, or is it something that develops? Is it revealed or is it created?

BM: I think human beings have always had a need to belong to the group but consider themselves better than the group at the same time. So, I think it's innate, but it probably gets fed if you get used to thinking of yourself as better than the group.

SP: So, what are the other markers or characteristics of people that are good, but going bad?

BM: I think one of them is an ability to rationalise. There is an enormous amount of pressure on people in business to produce profits, to please shareholders, to please their board of directors. The rationalisation becomes, 'Well, if I can do this and bridge this failure for a little bit of time, I keep everybody happy.' Of course, the other way to look at that would be, that keeps your ego happy too. You don't have to confess that you failed, but it's a very powerful rationalisation and it's true. The most dangerous things in the world are always those that have a strong element of truth to them because it's so tempting to believe in it. So, I think that's part of it. I think it's very hard to be the leader of a company if you yourself aren't a believer and are biased towards belief because you need, as the CEO, to be able to inspire other people with your grand vision. And so how, if you're inspiring people with your grand vision, do you not believe in that grand vision too? Then I think that it becomes very hard to then acknowledge that the grand vision isn't playing out.

SP: That really begs the question, what separates a visionary and a fraud?

BM: I've made this argument that I think they are actually the same person. You would think that the visionary sat at one end of the spectrum and the fraudster at the other end of the spectrum, but I think it's one of those many things where they actually meet in the circle. I sometimes think the only thing that separates them is that the visionary gets lucky and it all works out and the fraudster gets caught in the middle. A lot of visionaries, from Thomas Edison through to now, have lied at various points in time and have said things that weren't true in order to keep their employees and their investors believing in them so they can keep getting the money to fund their dreams. That's certainly true of Elon Musk, wherever you believe he sits on that spectrum. When you look at his history, he's for sure lied at many points in time in order to keep funding his dream. So, I sometimes think the fraudster is just the person who stops being able to convince people and the bandaid gets ripped off, or the curtain gets pulled back and everybody sees the inner workings. I think for some fraudsters, maybe it would've worked if they had just gotten more time and been able to keep getting money. I think about that with Enron broadband, which was Netflix ahead of its time, it was a visionary idea. But maybe that begs another question – maybe the difference is execution, it's not just the idea. So maybe that's what separates the visionary from the fraudster, the idea is the same, the grand big, beautiful idea that everybody believes in, but maybe the visionary either knows how to execute or knows how to hire the people who can execute and the fraudster doesn't.

SP: Take off your journalism hat for a second though and put on your citizen hat, is it a good thing or bad thing on the whole that we have people that have these grand ambitious plans that get funded because occasionally they hit?

BM: I think it's a good thing. I think that the inevitable frauds and blow-ups are the price we pay. I think it's good to have these big grand ambitious plans. Life would be really boring if you didn't have that. I think reflexive cynicism about this sort of thing is just as bad as blind belief because it's these things that really do change the world.
That said, I don't mean to blindly celebrate our current system because I do think either accidentally or deliberately, our system has evolved to one in which the people who should be taking the really big risks and then reaping the really big rewards has turned into a system where those people can reap the really big rewards, but they've managed to push the risk onto other people. That, I think, is not fair or healthy.

The Asian Financial Crisis & the Birth of the Age of Debt

RUSSELL NAPIER
HIDDEN FORCES PODCAST

Interview by Demetri Kofinas

Russell Napier: It's far too easy to go back and look at our ancestors and say, 'They were so stupid and we are so bright.' No, we are just as stupid as they were. I want to go back and find out why smart people did stupid things. I'm also looking at my own writings for that, because obviously I've done some stupid things in the past as well. That's the real value in contemporaneous writing. It's the fog of war. This is someone looking into the fog of war. We all know what was through that fog. That person, whether it's me or a journalist for *The Wall Street Journal*, didn't know. And maybe the real value to work out the future is to look at constant forecastable mistakes, mass mistakes, mass error, and when you see this sort of error going on, that's the time – if you're an investor – to buy or sell shares.

I think there's huge value in contemporaneous opinion. I think it would be wonderful if people were doing more of this, because it's so much easier to do than it used to be. It used to be you'd have to go to a dusty old museum, down to the basement, find the microfiche machine, scroll through the microfiche, no search function. And now one can sit in the comfort of one's own home if you pay the subscription to the right service, and really do a lot of work on contemporaneous opinion to find out where it went wrong. And particularly for financial markets when so much of it is forward-looking anyway, I think there's real value in this. I'm ploughing a lonely field, I feel, at the moment, but the time will come when other people see the value in contemporaneous opinion. Stockbrokers' research, for instance, is deeply despised by most people who read it, but it's a pretty good reflection of the consensus opinion. And when you're looking back as a historian, I think there's real value in that.

Demetri Kofinas: In your book, *The Asian Financial Crisis 1995–98: Birth of the Age of Debt*, you said that there was a lot of wishful thinking going on during the crisis, and that a big part of the reason for that was because people didn't want to do the work, or they knew that it would take a lot of work to try and figure out what was really going on. The central preoccupation in the book is 'guessing what was on the other side of the hill', to quote Arthur Wellesley. Specifically, we're trying to assess when this unsustainable credit cycle that you were witnessing in real time was going to end.

RN: That's absolutely right, and that is the problem for everybody in finance. Most people can see things that are unsustainable. The problem is they don't know when they become unsustainable, and you can lose your career in waiting for that to happen. And many people have seen their careers end as they've waited for the unsustainable to be proved unsustainable. The question is, how do you stay until one minute to midnight? Should you stay

until one minute to midnight? And it's unfortunate that professional investors are kind of paid for that. And maybe they shouldn't be paid for that, but they are... I hope this book has lots of indicators as to when an unsustainable credit boom becomes actually unsustainable.

One little story that's in the book – British pension funds had more money in Asian equities than they had in American equities. Now, that's stunning. It's absolutely stunning, and of course it was completely wrong. Some of these Asian markets by the way, in terms of the capital indices measured in dollar terms, are still below where they were in 1994. Well, we all knew where the American stock market was. And 1994, by the way, is when Jeff Bezos set up Amazon. So, it turned out that where you really wanted to be investing was America, but they had so much money in Asia. And the point is people thought it would go on forever because it was so clear that this is where the growth was. One of the great lessons of financial history is that economic growth is not necessarily related to returns from equities. I mean, America's economic growth over the past 30 years has been not bad but not good, but look at the stock market...

DK: How has the liquification of finance and the increasing rate of turnover of financial assets restructured the financial system? Has it changed the spectrum and distribution of financial returns in a way that has been destabilising? And where would you put securitisation in all of that?

RN: That is a fantastic question. It is so key, so important and so few people focus on it, but the liquification of assets has changed the planet. And it's unsustainable because it creates – Soros calls it the wrecking ball of global capitalism. He's not exactly a man who criticises capitalism, but this particular element of it, the ability to move capital that quickly, can be a wrecking ball. And it isn't necessary to have a system that's liquid to have a system that allocates capital well. We've never had a system that's this liquid in terms of capital moving around. I don't mean just internally sort of switching from US equities, to US bonds, to US mortgage-backed securities. I mean cross-border as well.

It has been very difficult for us to establish a cross-border regime that could ever deal with capital flowing at this pace. We had open capital accounts before the First World War – capital did flow across borders, it did flow to securities, but not in the way it does today. It was more going to foreign direct investment. So, it's highly destabilising, the ability to move this money around. One of the reasons why the Asian crisis was so big was it could happen so quickly. If that money couldn't move quickly, the local economies would have had time to adjust.

... there will be, going forward in the new world, more attempts to slow down the pace at which capital moves...

The conclusion to me from all of that is we'll have to get away from that, and there will be, going forward in the new world, more attempts to slow down the pace at which capital moves, because financial structures can't cope. Ultimately, societies can't cope with the pace of it. Most people would say that's a really bad thing. It's maybe a bad thing, but it's not a terribly bad thing as long as long-term capital continues to get to where it needs to get. This need to have excessive liquidity on the way is not necessarily a good thing.

DK: This reminds me of one of the very first episodes I ever did with Mark C. Taylor, a philosopher and theologian out of Columbia University. He wrote a book called *Speed Limits* and dealt with this issue, not just in finance, but in other areas of the economy. Things are constantly speeding up, and that is changing our world in ways that I just don't think most people can appreciate.

A City in the Cloud

BALAJI SRINIVASAN
CHARTER CITIES PODCAST

Interview by Mark Lutter

Mark Lutter: I am cautiously optimistic about the United States over the next few decades, but not over the next decade. The next decade I think is going to be hard. It's also going to be a Chinese decade, not a Chinese century. Their working-age population peaked a few years ago. It's already in decline and it's going to start declining more severely. They're a net food and energy importer. So, while they do have all this organisational capacity and they're riding high on the last few decades, I suspect that there is a lot of weakness underlying that.

Balaji Srinivasan: On China, I think it will be a Chinese decade and not a Chinese century. But that's only because I think the internet will eventually up and beat China. On working population and demographics, look at autonomous robotics, at how good that is getting: grasping, packing, every subroutine is getting really good. It's all going to switch over to a robotic workforce, and so the entire twentieth-century model of quantity gives way to quality. It's the strength of your programmers more than the size of your population.

ML: So you would argue that the view that demographics tend to have a very large impact on long-term outcomes is not going to be particularly relevant in the twenty-first century because robotics and mass production of what might be called 'substitute robot labour' is going to play a much larger role in national outcomes?

BS: That's part of it. It's not even a future thing. It's a past thing. WhatsApp had fifty-five people and got to 500 million users. Instagram had twelve people. Minecraft had one guy. Satoshi was one guy. So, the leverage that technology gives you. We've already got robots on the internet. When you hit ENTER, a bunch of virtual robots go and do thousands of tasks for you. Now we're also going to get physical robots. The proof point is already there. Do I care about the demographics of the US when you're talking about twelve people? No. You just need twelve really smart people. You don't need 300 million people. In fact, those twelve smart people were able to disrupt Kodak, which had way more than twelve people. So, it's a very rearward-looking thing. I'm not saying demographics have no impact, but I think it mostly has a negative impact in the sense of lots of people to manage is more like a liability than an asset.

ML: Why has physical innovation slowed? One of the arguments is regulatory. The other is that there were low-hanging fruit, so some innovation was just easier than others.

BS: The critical piece is we have to tolerate a period of anarchy – let me explain what I mean by that. So, for a while, and still today, there's a problem with spam on the internet. But in the early 2000s, it was really bad, and there were lots and lots and lots of different models that were proposed to control this. But eventually, what turned out to work was

It's all going to switch over to a robotic workforce, and so the entire twentieth-century model of quantity gives way to quality. It's the strength of your programmers more than the size of your population.

Bayesian spam filtering, which is a decentralised version. That got spam mostly under control, and Gmail implemented that. Tolerating a period of anarchy was actually the right thing to do, arguably.

ML: I would, I think, phrase it a little bit differently. What you need is to allow for an early degree of high uncertainty to allow an iterative process that can rapidly improve. For example, if you had looked at the first airplanes and thought, 'This shit is crazy. Who would ever get in one?' And they had relatively high death rates. But you had to accept that, 'Oh, wait. Flying is pretty cool.' So, if people want to choose to get in an airplane or to test this out, that is their decision, and this wasn't even a quick iterative process. It took decades for it to really fully play out.

BS: Aviation – it was pretty fast, I think. From the Wright Brothers to a jet aircraft was a generation.

ML: Yeah. But that's decades. It depends on how you're defining fast. It wasn't instant. It took decades for it to build up to that level of safety, that level of corrective capacity. So, you need to tolerate this period of initial uncertainty, initial risk, to allow for this iterative process that will work. I'm not sure it will work in all cases, but it will work in most cases. And that is, I think, necessary for the emergence of a lot of new technologies. And our risk profile has just gotten so conservative – that we're not willing to tolerate this initial piece of uncertainty.

BS: Risk-aversion is the greatest risk, or rather excessive risk-aversion is the greatest risk. For example, the fact that the FDA went and stopped Apple from putting diagnostics into its Apple watch many years ago in 2015 meant that the Apple watch wasn't as featureful. And it meant that it couldn't scale to tens of millions of units. And it meant that by 2020, you didn't have distributed diagnostics that could have diagnosed COVID without requiring a test.

ML: Let me just state this even more strongly than you're stating it. I'm not sure people realise how fully horrifying this is. But wearables basically allow you to detect COVID outbreaks two to three days before everything else happens. So, if we had allowed for diagnostic wearables now, even if we had an incompetent government, we could still have had a semi-competent response. Because you just set a program where it's like, 'Okay, if 5 per cent of the population is seeing an, I don't know, 1 degree increase in their temperature...' I have no idea what the metric is. But it's easily detectable. You can see the outbreaks. And you can just send out mass text messages, like, 'Everybody stay home the next week.'

BS: Absolutely. That's just one dimension of it, but it's an important dimension. People talk about the risk premium in finance. You pay a premium for risk. This is the risk-averse premium. The premium we're paying for not taking enough risk. We're not taking calculated risks along the way.

In addition to the risk-averse premium and things like that, the key thing with all of these is you need a zone that people can opt into, where they can be test pilots. If you're in a self-driving car zone and you've chosen to enter that self-drive car zone for a live-fire test of self-driving cars, you have chosen to live in the future and take some risk. And here's the thing: we allow bungee jumping, we allow skydiving, we allow joining the military and getting shot at in the Middle East.

We allow people to take arbitrary risks for no reason or for enjoyment. So, if that's legal, why is it not legal to take an experimental drug? Why is it not legal to go and fly an experimental plane? Why is it not legal to do something with your own body? Why don't you have sovereignty over yourself? It should be your body, your choice, but for everything.

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