

Transcript of Rationally Speaking episode #38: Prof. Ian Morris on “Why the West rules – for now.”

Julia: Welcome to Rationally Speaking, the podcast where we explore the borderlands between reason and nonsense. I'm your host, Julia Galef.

With me today is our guest, Professor Ian Morris. Ian is a Professor of Classics and Professor of History at Stanford University, and a fellow of the Stanford Archaeology Center. He has published 12 books now? I think that's right.

Today we're going to be talking about two of his most recent books, "Why the West Rules – For Now: The Patterns of History, and What They Reveal About the Future;" and a companion volume entitled, "The Measure of Civilization: How Social Development Decides the Fate of Nations."

Ian, welcome to the show.

Ian: Thanks for having me on.

Julia: Maybe you could just give us an introduction to the question you were trying to answer with these two books. Just expand on the question of why the West rules for now.

Ian: Right. I started thinking a lot about ... This would be actually 5-10 years ago, thinking a lot about why it is that the whole balance of the world seems to have changed in the last 50 years or so.

Since about 200 years ago, a pretty small group of nations around the shores of the North Atlantic started dominating the whole planet, in a way that nothing like that had ever really happened before. This is a world that I grew up in as a little boy, and lots of people are familiar with this ordering of the world.

Then this already began to be upset, over the last 50 years. Particularly with the rise of countries in East Asia becoming wealthier and wealthier and having more and more influence over the rest of the world.

All kinds of people have been arguing about "Why is this happening?" I started getting interested in this problem, and discussions about what the possible causes were. One of the things that really struck me was how the arguments about this, people just seemed to be talking about different things a lot of the time. They would look at different slices of the problem; they're using different kinds of evidence, applying different standards of proof.

It's like the old story, there's a South Asian Indian story about the five blind men and the elephant. The king puts them in a room, and says, "What is it?," and you grab a different bit. It felt a bit like that. I thought, "Well, what could be done to make it so that we are at least all holding on to the same bits of the elephant?" Or what animal it belongs to.

I felt when you looked at these arguments, what they were really about, was what I started calling, "social development." Basically, just the ability of a society to get things done in the world. To master its intellectual and physical environments, and allowing people to get what they want from the world; impose their will on the world, and so on. This is what this argument was really about. Which parts of the world have the most social development? When did the patterns arise? What caused the patterns to arise?

Having decided that, though, then of course the problem becomes, 'Okay, how do you actually measure social development?' This is what I ended up working on. I wrote these two books that you mentioned. *Why the West Rules – For Now*, which was an attempt to explain what the patterns in social development have been and what caused them. The other one, *The Measure of Civilization*, was like this giant CliffsNotes, explaining what social development is, how I measured it.

In order to be able to see the whole scale on which this process had happened, I was looking back all the way to the coldest point of the last Ice Age: 20,000 years ago. I was comparing Eastern and Western development across 20,000 years; looking at the big patterns and then trying to say what explains that.

Julia: That's great context. If you could just give a little bit more, and give our listeners a sense of, "What are the ways that people were talking past each other in this field, until now?"

Ian: One of the most popular ways to look at this was mostly people in the West writing about this situation. Mostly, "Oh my God! What's going wrong? We're losing." I thought there was a lot of kind of self-serving stuff going on. People would start off saying, "Well, what is it that has made us so great?" Which I think is never a good way to start.

... Somebody would say, "Well, it must be religion. We're Christians. The rest of the world isn't. That's why we're better than they are." Others would say, "Oh, no, no. We live in a place where the climate is just perfect." This was a popular argument again in the 19th century.

There's a guy, a professor of geography at Yale University, who came to the conclusion in the 1890s that climate had made the West dominate the world.

And he said the place with the perfect climate in the entire planet was England. I grew up hearing that.... This is the level of argument we sometimes take!

And culture was a very popular one. Something unique about Western civilization. Often people would trace it back to the ancient Greeks, and say, "Yeah, this just made Westerners better than everybody else. Of course Westerners came to dominate the whole world."

There's lots and lots of different ideas people had. Sometimes people would say race, as well: "Westerners are genetically superior to everybody else."

The big problem with these things -- apart from the fact that, a lot of the time, these just don't make sense -- the big problem is, if this is true, if Westerners are genetically superior or have been culturally superior since the ancient Greeks, then why is the East now apparently catching up? What has happened to suddenly make this long term pattern go away?

I wanted to try and get past that, and look at something a little bit more concrete. Where we could make the debate a bit explicit about what we're looking at. I took a page out of the book of the United Nations; they do this thing, every year they calculate what we call a "Human Development Index."

This was an idea that they came up with about 25 years ago. The idea was, we want a set of numbers that we can offer to eight organizations and other people planning on trying to do something to improve the world. What a lot of these organizations say is, "We want to know which governments are doing the best job, in different kinds of ways, and allowing their citizens to realize their innate human potential." The UN says, "We want a human development index that gives you a score for each country, on the ability of governments to do this."

And they hire these economists, and say, "Do this for us." The economists say, "Well, human development is this big shapeless concept. What we need to do is break it down into a small number of things we can actually measure." For human development they came up with, I think it is, life expectancy at birth, years of education, and then average lifetime earnings in a country. I said, "That doesn't cover everything you mean by human development, but it covers most of it. And we can measure it, and then compare the countries."

So I thought, "That's kind of what I need, for social development. For this bigger concept about the ability of societies to get things done in the world. How can we break that down?"

I broke it down into four categories of things that I looked at. One of these was energy capture per person. How much energy do we gather in from the world, to be used for all the purposes we need?

A second one was organization of the society. I used this very crude proxy for that, that economists often use. It's just, what's the size of the biggest city in a society?

The third one was information technology. I take skills of literacy, and numeracy, and then technology; you've got the storing and spreading information.

Finally, one which really couldn't be left out, which is war-making capacity.

I then tried to figure out ways to measure these over long periods, compare different parts of the world, and come up with the shape of history that we needed to explain.

Julia: Just to zoom in on the energy capture component of social development -- can you give an example of what energy capture looks like? Maybe in ancient times, and nowadays?

Ian: Yeah, energy capture in a way is kind of the foundation of the whole thing. Because everything else that we do is about using energy. If you don't capture the energy from the world in the first place you can't do any of this stuff.

If you go back, say to the end of the Ice Age, about 15,000 years ago, it's a world of hunter-gathers. Everybody in the world lives by hunting wild animals and gathering wild plants. This is a way to live that in some ways is quite nice. You don't usually have to work all that hard. A few hours of work a day will get you what you need, usually; when there is food available. On the other hand, there's really low limits to how much energy you can extract from the world.

Anthropologists find that typically hunter-gathers can get about 4,000-5,000 kilocalories of energy per day, by doing this. What that means is the average person eats about 2,000 kilocalories of energy a day. The rest of it goes for everything else you do: the fuel that you use, the homes that you build, the clothes that you wear. All of this has to get covered by the energy captured from the world. If you fast forward to our own time, of course, some people still eat wild plants and animals, but in the meantime we've had the Agricultural Revolution which gave us domesticated plants and animals as most of what we eat now.

We've had the Industrial Revolution. We cracked the secret of fossil fuels, and now we use oil to power airplanes and fly around all over the world. People burn oil to make electricity, so that we can talk to each other over long distances, and

listen to radios and podcasts and all these sorts of things. Huge amounts of energy get burned up. In the United States nowadays, typically the average person burns through about 230,000 kilo-calories of energy every single day; compared to 4,000-5,000 for the hunter-gathers. There's this big, dramatic orders-of-magnitude change in the amount of energy we use.

This, I think, is one of the big forces driving history. The challenge then, was to figure out, "Well okay, how am I going to measure in detail across the last 15,000 years, how am I going to measure that?" It took quite a long time; but I convinced myself that this could be done, and that we could track in reasonable levels of detail, the history of energy use.

Julia: Was there a reason that you didn't use something like GDP, as a measure? How is social development different from economic development? Why do we care about the former, than the latter?

Ian: I'd say economic development and GDP, they're a part of the social development. The energy part of the equation maps on quite closely to GDP. GDP is how much wealth you're producing per person: GDP per capita, how much wealth you're producing per person in your society. That is like a direct function of the amount of energy that you're generating from the world.

But energy capture and GDP, they're only part of the bigger picture of social development. You can say there are some societies in history of the world, like say, the nomads who lived on the steppes of Central Asia -- people like Genghis Khan and the Mongols, or Attila the Hun, and all these guys -- they scored generally quite low on energy capture. Because the steppes are a very difficult place to live in; nothing grows there. Grass is pretty much all that grows there. The only way people can live there is if they put animals onto the grass, like horses or cattle eat the grass, and people eat the animals. Energy capture is very low on the steppes.

But because they've got all these horses, for a long period of history they've got an enormous level of military power. There's different components to social development, and the particular set of the steppes the nomads had allowed them to smash things up really well. They just weren't very good at building anything to replace it. They're constantly overrunning the great empires, the agricultural empires, breaking them up; but then they don't replace them really with any lasting empires and states of their own.

Through history, different societies achieve different success with different parts of the larger bundle. The two big changes in history were the agricultural revolution, which hugely increases the amount of energy available, about 10,000 years ago. Then the industrial revolution, the fossil fuels revolution about 200

years ago. That released so much energy. With the fossil fuels revolution, all of a sudden we're able to start doing things like information technology, war-making organization, at a scale way beyond anything that's been seen before in history.

Julia: Great. So we now have this wonderful measure of Social Development -- what kinds of questions does this allow you to answer? Or what kinds of patterns are you able to detect, having this objective measure?

Ian: Yeah. I thought that this gave me a tool really to answer the basic question about, "Why is it that the West became dominant in the world a few centuries ago? And why are there now all these signs that that's changing?"

I guess one thing that I would say about the social development index, is that I never tried to claim it made what I did more objective. You quickly figure out, when you're doing the calculations yourself, there has to be a lot of guesswork involved here. Your best judgments of things.

It's not objective, but I think it's more explicit. If I say, "Well, you know, energy capture in the Roman Empire peaks at... I forget the exact number, but say 35,000 kilo-calories per day, somewhere around there." Someone can come along and say, 'Well, why do you say 35,000? Why not 36,000? Why not 34,000?'

You've got to have reasons rather than just kind of making it up, the way I think people have been doing lots of previously. It forced me to be more explicit about what I was doing.

Then, I felt what a tool allowed me to say was, so much of this debate about East and West has really been a debate about which societies are more developed, and at what point in time. Is there something about the West that gave it higher social development going right back to the ancient Greeks, or the origins of Christianity, or whatever it might be? Or is there not? Did Western dominance get locked in millennia ago? Or is this in fact, a very recent development? This has been what the arguments about.

I felt that what the development score showed you was it's a little bit of both. Which I think is usually the answer in these historical arguments, when there's two sides to it. On the one hand, Western development has been higher than that in any part of the world going back a very, very long way. Because the agricultural revolution first happened in the Western end of Eurasia, in what we now call the Middle East. That wasn't because of culture or religion, or anything like that. It is just written by geography. That was the part of the world where there were most plants and animals who could be domesticated, so that was where domestication farming first began.

Having got this early lead, Western development then stays ahead of every other region of the world for most of the time since then; but not all of the time. We see this great change in roughly the 5th-6th centuries AD; where the big empires you get in China and the Mediterranean, they all collapse. But the Chinese are able to reconstitute their empire, whereas people in the West of the Old World are not able to do that. At that point, Chinese social development pulls a long way ahead of the rest of the world.

It only flips back again in the 18th century -- when the West has created this very, very new kind of economy around the shores of the Atlantic Ocean, drawing the New World into European dominated economy, becoming more and more productive, and the West then once again catches up and overtakes the East.

I felt that this really showed us two big things. One of them is that the prime mover in this story has been geography. It hasn't been about culture or great men, or accidents, or any of those things. Geography has been the big driver of who dominates the world.

The other thing it shows is that none of this is written in stone. The story is kind of this back and forth between geography and social development. As social development rises, what geography means keeps changing. Different and powerful parts of the world become dominant at different times. This is a big take-home lesson, I thought.

Julia: Can geography explain why various civilizations at various points in time collapse? And why some of them, like China, are able to recover, and others don't?

Ian: Yeah; to a point ...The bigger the scale of the question you're asking, the more abstract it gets, the more these material forces of geography and basic human biology tell you the answer. The more you get down into the details and out of the weeds, the more the things like accidents and individuals start to matter.

If you were to ask, "Why does the West rule?" I would say "Geography has been the big driver of that." If you were to ask, "Why did Germany lose the Second World War?" ...Geography has quite a bit to do with that, but then there's also a lot of individual personal things: the character of Adolf Hitler, the specific decisions of Hitler, and Churchill, and Stalin, make all of these things seem to matter a lot more.

With the collapse of civilizations, a lot of it in broad brush strokes. A lot of it is driven by geography. Like say, the collapse of the Roman Empire, and the Yuan Dynasty in China, and the end of ancient worlds. A lot of this is driven by the fact

that these empires get bigger and bigger, and bigger; more and more tightly linked together across Eurasia. As they do that, they change the meaning of geography. The Steppe lands running across Central Asia, these begin to be kind of the highway connecting these empires. One of the big things that happens because of this, is people move around a lot more than they ever had before. They start to merge disease pools that have previously been separate. You get all these new diseases, starting in the second century AD. Gigantic epidemics that just devastate the populations and the great ancient empires, and play a major role in bringing them down.

We see this kind of thing happening over and over again. A particular way of doing things is really successful. It changes the meanings of geography. That then undermines the success of the people who started out with it. Geography often plays a part at the broad level -- but again, when you want to know the exact details, like "Why does the Roman Empire and the West end in 476 AD, rather than 376 or 576?" that has a lot more to do with the individuals.

Julia: You've mentioned, in opposition to the geography/social development model, you've mentioned these "Great man" theories of history. That the actions of a handful of particular people, like Mohammed or Jesus or Hitler, have driven history.

You've also mentioned culture as something that people theorized has driven history. In terms of culture, one thing that was on my mind when I was reading a book that people probably think of when they think of your book, which is Jared Diamond's "Guns, Germs, and Steel," is that he also argues that geography is a major driver of how civilizations develop and why the West became dominant. But there are a bunch of gaps in that model. Like for example, the fact that the West pulled ahead of China. Because China had all the things that Jared Diamond's model of geography said should have allowed it to rise, as did the West.

One theory, I forget if Jared Diamond himself put forward this theory or someone else did, but one theory to fill in that gap, is culture. That China's culture turned inward around the 18th Century; whereas the West was turning outward, and that this was responsible for why even among that small set of regions, like Europe and China, that had the ability to become dominant, why it was the West and not China.

I guess I'm wondering how culture fits into your model at all. Is it not doing any causal work at all, or is it just a sort of an intermediate causal factor?

Ian: Yeah, yeah. I should say I'm a huge fan of Jared Diamond. I think his book's absolutely wonderful. Also, he's a really, really nice guy, which is not always the case with famous authors. I'm a great fan of his work.

I think one of the most important things he's done was to draw people's attention back to geography, in understanding the big questions a lot about the world. It's a really old idea, that geography drives everything. What people will normally say is the first historian in the world, Herodotus, in the 5th century BC; he's basically a geographical determinist. Geography though, it's sort of come in and out of favor. Through much of the 20th century became very unfashionable with historians to say geography really does anything. Jared Diamond, I felt really put it back on the table.

The question you raise about China and culture and geography, this is a really good one. It's one of the things that if you're interested in this problem about Western dominance, this is one of the things that you've really got to confront. I guess what I would say is that, "Yes, of course culture plays a part in what happens." We're all just aware of this in our everyday lives if you travel at all, you're aware of the power of culture. The question, I think should always be, "Well, why do we get the cultural changes that we do get? Is culture this like totally independent force that acts on people, or is it something else driving the culture?" I think with the case of Chinese conservatism, you can see really clearly it's an example of a bigger pattern where larger forces drive conservatism in societies.

Something I think we see over and over again in history, is that when one society, one region has been doing really well, and then things go wrong, people often turn inward and start looking backward. In a sense, they become fundamentalist. They look back into their past and say, "Oh boy! What was it we were doing so well, back then, that we're now not doing? And how can we go back and recapture the excellence of the past and bring it forward into our modern world?"

I think China, like every part of the world, has had phases of being like this. One very big phase begins in China in the 13th and 14th centuries. They suffer a lot of defeats at the hands of these steppe nomads, the Mongols in particular, and Kublai Khan takes over the whole of China, and the Mongols rule China for awhile. Black Death ravages China. Just all kinds of stuff is going wrong.

People start saying, "What can we do?" The intellectual elite start saying, "What can we do to recapture the greatness of Confucianists, the way it used to be?" And they become very aggressively conservative, and very opposed to new ideas, at a very unfortunate time for this to happen. This is just the moment

when the world is beginning to open up. This is a disaster for China in a lot of ways.

But it's not something that just pops out of nowhere. It's a reaction to a set of problems, these invasions from overseas that are ultimately driven by geographical forces. I think there are, like I said, lots of examples of this.

In some ways I would say that Islamist Fundamentalism is another great example of this. Up till the 17th-18th centuries, in many ways the Islamic world can still say, "We are one of the most important, wealthiest places in the world, with the most sophisticated culture."

And then it just all goes terribly wrong. You get the rise of this very powerful civilization in Western Europe, driven by this new Atlantic economy having a scientific revolution, and some Muslims react by trying to learn from the West. Others react by saying, "Oh no. We must look back to the past. Shut out all that new stuff. Kind of recreate our vision of what the Islam of the 7th century AD was like." I think we see this pattern over and over again. Culture is really important but there's always something driving the culture.

Julia: This is very interesting.

I guess I'm still confused about how deterministic your model really is. Because geography is basically fixed. And if culture is the other factor affecting things, but culture is also determined by geography, then why isn't it the case that if we rewind time thousands of years and restarted it, that because the geography would be the same, the patterns of history would play out just as they did the previous time?

Ian: Mm-hmm. Yeah. This is, of course, one of the big interesting questions you get into when you're looking on this sort of scale. I would say that one of the things I learned from doing this is that geography kind of isn't the same. Geography doesn't stay the same through time. Even though the placement of the continents has not changed very much in the last few million years.

What makes the story go along, is that geography drives social development, and so if at the end of the Ice Age, if you're living say at the Eastern end of the Mediterranean Sea, Israel, Lebanon, Syria, somewhere like that, you have these enormous advantages over anyone else on the planet, because there's so many kinds of plants and animals that can be domesticated here. That you, other things being equal, you are certainly going to be the first part of the world to have an agricultural revolution. You're going to have the biggest, most complex, most sophisticated societies, and you're going to become the most powerful part of the world.

Geography is driving social development. If you live in Siberia, you're not going to have an agricultural revolution because there are no domesticable plants and animals to speak of, up there. There's another side to it, as well; which is that while geography drives social development along, as social development increases on the folds, it changes what the geography means.

I think the best illustration of this would be the rise of the West in the last 500 years. Basically ever since humans came on the planet, Western Europe had been a backward, cold part of the world. Nothing very interesting was going on there, through most of history. It was a long way from the big centers of innovation like the Mediterranean, India, China.

Geography basically dictated this. Western Europe is stuck out in the Atlantic Ocean. The Atlantic is too big and fierce of an ocean for anybody to really do anything with it. So Western Europe is a backwater. That all begins to change very quickly after about AD 1500, because the Chinese, a few centuries earlier had begun developing ships that could sail pretty much anywhere they wanted; very fancy new kinds of ships that can cross oceans. Knowledge of these spreads really quickly across the Old World, gets to the Mediterranean Sea, and Europeans start building their own versions of these ocean-going ships.

These ships change the meaning of geography. The Atlantic very quickly changes from being a barrier of which prevents Western Europeans from going anywhere, to being a kind of highway that now links them to the rest of the world. Because they're 3,000 miles from Western Europe to America. This is a distance that, by the 17th century, these new ships can cross.

Suddenly Western Europe gets plugged into this kind of new geography, these new markets on the Atlantic. Enormous amounts of wealth start to be generated. Kind of the unfairness of the story, is that even though the Chinese were the ones who first began developing these ships, the Pacific Ocean is just too big to do anything with. It's about 8,000 miles you've got to sail to get across the Pacific, to the Americas; to follow the winds and tides that you would need to use. That is just too far.

So the rising social development changes the meaning of geography in a way that is this huge benefit to Western Europeans, but really doesn't do anything much for East Asians. It's not really until the 19th century that you've got ships that can really reliably cross the Pacific Ocean; and the Pacific starts to shrink in the way that the Atlantic had done back in the 17th century.

You're getting this constant feedback, between geography and social development. Geography drives development, but development drives what geography means. That, I would say, is why the story of history gets so messy

and complicated. As geography changes its meanings, the parts of the world that are most developed, keep moving around.

Julia: That's very helpful; but I still don't quite feel like I see where the element of non-determinism is coming in. Because you can have messy deterministic systems, right?

Maybe for example, your answer could be something like, "There's some randomness in the pace of social development in different countries." So it could be that one region invents a certain technology first, and that gives them the edge that they need for their social development to advance and transform their geography into something beneficial to them, when it hadn't been previously. But, it could have gone the other way if the inventor in China had gotten to that first.

Ian: Yeah. I guess I would say that determinism is perhaps the wrong word to use here. It's more about probability.

Let's say, in something like the beginning of farming, like I said, the densest concentration of plants and animals that can be domesticated is in the area around what we now call, Iraq, Syria, Israel, sort of area. That meant it was always much more probable that farming would begin there, than anywhere else. Probable, but not absolutely certain. There could have been these extraordinary random weird coincidences, which meant that the thousands of years nobody in the Western end of Eurasia ever managed to quite figure out how to start the process of domestication. Possible, but deeply unlikely. In that case, some other part of the world would have begun the agricultural revolution.

My sense of the way that this works is that, what we should be thinking about here is probabilities rather than complete determinism. And also levels of probabilities. Something like the beginning of agriculture -- it's possible that that could have happened in China, or it could have happened first in Mesoamerica or the Andes. Agriculture did begin in all these places, but it began there much later than it had begun in Western Eurasia, because the odds were stacked so strongly in Western Eurasia's favor.

On that level of very, very large scale things, the probabilities are driven by geography, and become so important that it's very hard to find good examples of things happening in improbable places first.

I think the more you burrow down into the details, the more room for randomness there is. One of the big questions I felt I was addressing throughout the books I've been writing, is, "Just how much impact do individual human choices have on history?" My feeling is that the great man and the bungling

idiots of history actually are much less great than they tend to think. That most of the great men who feel they changed history -- they've changed it at some levels, but not in others.

Mohammed, who you mentioned, is actually the best example of this. Nobody can dispute that this man changed the course of history in many, many ways. If he had not gone to sleep in that cave; had not woken up, convinced he had a visit from the Archangel Gabriel; had not been persuaded by his wife there really was a supernatural visit, rather than a bad dream -- if all these little accidental things had not happened, he would not have started Islam.

There's a pretty good argument to be made, that if he hadn't started Islam, then it's not likely something inevitable was going to get started among the tribes of the Arabian Peninsula. Many, many things would have happened differently over the next few centuries. Mohammed in many ways has to be listed as one of the great men of history. But, if you're asking the question I asked in my books, "Why does the West become dominant?" Mohammed's importance in this story and the origins of Islam starts to be a lot smaller, to play a much less important determining role.

One consequence of the rise of Islam and the Arab conquest was that it speeded up the decline in Western social development that's going on during the 6th, 7th, 8th centuries AD. If it hadn't been for the Muslim conquest, Western development would not have fallen probably as far, or as fast.

But if Mohammed had never been born, Western development still would have fallen. Maybe slowly, maybe not so deeply, but Western development would have carried on declining. Eastern development, which is completely separate from Islam, would have carried on rising. We still would have seen a shift in the center of gravity of the world from West to East. At that level of abstraction, the rise of Islam and Mohammed's part in it starts to look a lot smaller. I feel this is true really throughout the story.

The first point at which you can say that one person really does have the power to change the entire history of the planet permanently -- I'd say it's 1962. We can be quite precise about this. It's the Cuban Missile Crisis. You've got enough nuclear weapons in the world at that point, that potentially you can change the entire course of the story.

By the 1980s we've got enough nuclear warheads that we can probably kill the whole of humanity. Back in the early 60s, maybe not; but you can kill enough people that you can change how the story's going to go forward in a way that nobody can really argue; that Kennedy and Khrushchev individually had the

power to change the course of world history permanently. Up till that point, nobody really did.

This, I guess, goes back to the question you asked, "If geography is so important, if we were to rerun the tape of history, would we come to a roughly similar outcome?" I suggest in my books that, "You know, we probably would."

The timing might be different. It might be that in the year 2015 the world is at roughly the stage that reality's at in 1715, or the stage it's going to be in 2315. There's a lot of room for sort of fudging on the details. But the basic story, I think, would have unfolded in a fairly similar way.

Julia: As many of our listeners are well aware, theories that fit the data really well are a great start. That's a very promising start for a theory.

Ian: Yeah, better than not fitting the data.

Julia: Better than not fitting the data, exactly.

But it is unfortunately possible to create theories that fit the data really well, but aren't actually explaining the true causal mechanisms. This becomes clear if and when the theory ever tries to make predictions. Because you can see whether the predictions actually come true or not, and you know how likely it would have been that they would have come true if the theory were false.

And with history it seems to me to be just so hard. It's so hard to see how you can have a lot of confidence in a theory, because -- I imagine -- you can't make predictions. (Well, when you're talking at the level of big history, maybe you can make predictions; but you can't see what the counterfactuals could have been, and you might have to wait hundreds of years to see how your predictions turned out.)

So I'm wondering, how does the question of prediction play into the process of creating a theory like yours?

Ian: Yeah, yeah. At these big scales of analysis, the spurious correlation problem becomes very important. It's possible to tell all kinds of stories that fit reasonably well with the data we've got; but it's hard to know which are just accidental correlations, and which are really identifying a causal relationship. I think I can say, the predictive power is the big test with these theories.

One of the things that just drives me nuts about my colleagues in historical profession is this insistence that history is not a projective discipline. That you're unable to tell anything about the future from the history. One of the favorite

lines among historians is that the one thing that we learn from the past is that we learn nothing from the past.

... Which of course, is ridiculous, because all of us know that that's not true. When you get up in the morning you decide, "What should I do today? Well, I'll put some clothes on." How do you decide that? Well, you know that you did yesterday. Everybody else did yesterday. You could sit down and reason from first principles that it's kind of cold out and so I should think of something to wrap around my body to insulate it and trap the heat, and you could go through all this process; but you don't. You know this is what people do in the morning. You know there are certain kinds of clothes that are appropriate to wear. All of us do this all the time.

Of course, there's huge professions out there where this is all they do. People in the financial sector are basically concerned with predicting future behavior from the past behavior of markets. People in politics are concerned with predicting, "What sort of strategy should we pursue?" The only way you can do that is by looking what's happened in the past. I think it's insane to say that history has no projective power.

One of the things I particularly enjoyed about the work I was doing, constructing this long term index, this quantitative index of social development, was that of course you have the potential to project the trend-lines forward. If you think you've identified what the biggest historical trends are, you can say, "Given whatever assumptions you decide to make, where are these trend-lines going to take us?"

This is where I get into the end of the two books we're talking about, and why those books are now on the measure of civilization. Asking, "Well, given the various kinds of things that seem plausibly to be driving the trends we're living with now, where will these lines of East and Western development go, across the 21st century?"

I ended up working with very conservative assumptions. And let's just assume for the sake of argument, let's say, "What's going to happen if social development continues to rise in the East and the West at the same speeds all across the 21st century, at the same speed that it did across the 20th century? What would happen to the trend-lines?"

And what happens is that the lines converge. The convergence has already begun, but the Eastern development score is catching up with the Western development score. The lines cross -- if you make the assumptions I mentioned, the lines cross in the year 2103.

This is a great prediction, in every single way. It's a great prediction because it's precise, and like you were saying the big test is, "Can you falsify the model?" You have to be precise, so if it gets to 2104 and it hasn't happened, then you'll know I'm wrong. (Because the other great thing about this prediction is that by 2103, I will be long dead; so I won't be around to see the most certain wrongness of my prediction!)

Julia: Well, it depends on how the technology line progresses. You never know. You might --

Ian: -- Yes, if in fact we do get to 2103 without blowing ourselves to pieces first, then yes, there's a quite possible chance I will still be alive. A horrifying thought.

I think why these projections are useful, why it's actually worth doing this kind of stuff -- again it's a bit like this debate between, is this a deterministic theory or a probabilistic theory?

The projection itself is, yeah, it's completely foolish. Because any projection about the future is only as good as the assumptions it is based on. I think where this projection comes in useful is very like a lot of the projections that strategists make, in the military or in economics. It's not so much about should we just believe the results we're being told, as it is, "What does this projection tell us about the assumptions we're making?"

My assumption, like I said, was that East and West social development just continue increasing at the same speed they did in the 20th century. Is that a plausible assumption to make? This is the question that this projection pushes in your face. What would need to be different? What would our counterfactuals have to be in order to produce a seriously different outcome, by 2100? What would need to happen in order to make Eastern development not catch up with Western?

That's where I think it gets really interesting, is thinking about how things might turn out differently. I think the study of big history shows you two big things: One is the trends that have driven history. The other is the forces that derail the trends. It pushes you to think about what could happen to produce a wildly different outcome across the next century?

Julia: And what could happen?

Ian: Almost anything. I have this huge spectrum of possibilities. I suggested we can at least think pretty concretely about the two ends of the spectrum. I think one very obvious end of the spectrum -- the really bad end of the spectrum -- is that if you look back through history, every time there's been a major shift in wealth

and power, or a major acceleration in the rates of growth of social development, it's always been accompanied by massive amounts of violence.

This is the bad projection. Because if we were to have the kinds of levels of violence we've seen in the past, if it were to repeat in the 21st century, now that we do have the nuclear weapons, the biological, chemical weapons, we really could destroy all of humanity.

You've probably heard, the last couple of days, it was just announced that the Russians are planning to build 40 new ICBMs. For the first time since the 1980s the number of nuclear warheads in the world is going to start right back up again. This is really, really terrifying. There's all kinds of scenarios where major social change leading to shifts in the balance of wealth and power in the 21st century could very easily lead to total war, and the destruction of humanity. That's a bad way for the story to play out.

The other end of the spectrum: I project the trend-lines for the 21st century where the lines meet each other in the year 2103. That would be a world in which the world's going to be at 5000 points on my social development index. Whereas the entire history of the world, from the Stone Age up till now, produced a score a little over 1000 points. So this is suggesting three times as much change in the next hundred years as in the previous 300,000 years.

The big question becomes, "If something even faintly like that happens, what does that mean for humanity?" What kind of animals are we going to be at 5000 points? That sort of led me to where I had a bigger conclusion about my story. It seems to me, if the world goes to 5000 points, we're talking about the transformation of humanity into an entirely different animal from what we are now.

We're already beginning to merge with our technology. If this goes ahead at the kind of pace that's implied by 5000 points, the human beings of 2103 are not really going to be human beings anymore. They potentially could be as unrecognizable to us as we are to single-celled organisms. We're talking that kind of transformation.

If that is where the world is going, this question that I wrote the book about, "Why the West now?", that in a way, that ceases to be a very significant question. If humanity is merged with this technology to produce some kind of giant superorganism with trillions of times the thinking power of all the people in the world combined today, are they still going to be talking about East and West? Are they going to be worrying about the balance of naval power in the Taiwan Strait? That just seems a highly unlikely outcome.

I felt in a way, the place that all this thinking about East and West got me to, at the end of the books, was not so much a question about why the West rules for now, as a question about whether the 21st century is going to see a complete transformation of what it means to be a human being. Or alternatively, the complete destruction of humanity.

Julia: We're almost out of time, but I can't resist following up with one more question. I want to explore this question of what it means for these trend-lines of social development to continue, and what it would look like. Something about the idea of, "In a hundred years humanity will be transformed", it feels implausible to me. (Although that doesn't necessarily mean it's not a good prediction. It could just be my intuition can't wrap its mind around it.)

But when I look back, when I compare for example the 50 years from 2010 going back to 1960, and I look at by comparison at the previous period of 50 years before that, from 1960 going back to 1910. It feels, just roughly intuitively, like the earlier period of 50 years saw more change in what the world felt like, what it was like to be a human in this world.

We had planes and we had TV and we had the bomb, and all these things that sort of made the world feel more transformed than in the 1960 to 2010 period. I guess I'm wondering how much the measure of social development tracks with the intuitive feeling of change in the world?

Ian: That's a great question, because I think it brings us back to this point I was making about, the projections are only good as the assumptions, and the line.

The assumption I made in this projection, like I said, was that the 21st century sees a steady rate of increase in social development to the same pace as the 20th. The big question has to be, "Is that a valid assumption?" As you say, you look back at the 20th century -- there's some arguments to be made, but the first half of it sees more rapid change than the second half. I personally don't think that is an accurate picture of what goes on, but there is room to argue over this.

One of the other things you regularly see doing historical research is how difficult it is when you're living through a process, how difficult it is to evaluate what has happened in recent history. It may be that 100 years from now, when people, if they are people, looking back at the 20th, 21st century, what they will say is, "Oh, wow! What happened in the late 20th and the early 21st century with the digital explosion, the synthetic creation of life, the ability to manipulate genes. That just dwarfs all the things you mentioned like TV, and internal combustion engine, nuclear weapons. Those were big, but boy, what happened in the late 20th century, that was the really big thing.

The implication of the predictions that I'm making is that second view will be the right one. When people look back, they'll look back at the genetics and the nanotechnology and the robotics and say, "This is the really big thing." Again, we'll find out, whether we like it or not. And we will find out.

Julia: All right. We are over time now, so I'm going to reluctantly wrap up this conversation; and we'll move on to the Rationally Speaking pick.

[musical interlude]

Julia: Welcome back. Every episode of Rationally Speaking, we invite our guest to introduce the Rationally Speaking pick of the episode. This is a book, or website, or movie, or whatever tickles his or her rational fancy. Ian, what's your pick for this episode?

Ian: My pick is a book. Although I must say, whenever people ask me questions like this, "What's the best book you've read recently?" My mind usually goes completely blank.

Julia: I know! Mine too.

Ian: The only thing I can think of is whatever I happened to have read most recently. In this case, it actually is a very good pick for the show. It's a book I just reviewed for the BBC History Magazine. It's a book by a historian named Richard Bessel. The book is just called, "Violence."

It's a history of ideas about violence, mostly in Europe and North America, across the last 50 years. The big thesis in the book is that we have become increasingly intolerant of violence, in the wealthiest parts of the world in the last 50 years. Increasingly intolerant of violence, and have also expanded our definition of what violence is. So that you can now be accused, under law in many countries, accused of committing an act of violence if you've never even laid a finger on somebody. All kinds of verbal and symbolic acts are now legally classified as violence.

The guy, Richard Bessel, is looking at this story and tracing how very, very sensitized to violence we've become. This is something that I'm really interested in. Because we we're talking in the main part of the show about possible outcomes in the future, as social development rises in different parts of the world. And I was saying, one outcome of history is mass violence, another world war using all the weapons at our disposal. Which I find very difficult to see how humanity survives something like that.

I think this is so important. Violence is so important when thinking about the future. I actually wrote another book that came out last year called, "War! What Is It Good For?" where I looked at the history of violence going right back to the Ice Age, and again made some predictions about where it's going.

I think one of the biggest forces in world history has been the decline in levels of violence amongst humanity. If you'd lived back in the Stone Age you stood a 10-20% chance of dying violently. In the 20th century, even with the world wars, you stood a 1-2% chance of dying violently. The World Health Organization now sets this down to 0.7% chance of dying violently. Richard Bessel's book I thought is just this great exploration of the cultural consequences that this has had.

Julia: Excellent. We'll link to Bessel's book on the podcast website for this episode, as well as linking to your books, "Why the West Rules – For Now" and "The Measure of Civilization." I just want to compliment you again on not just how enjoyable and interesting the books are, but on the rigor with which you approached the topic. Even if your theory is wrong in some ways -- which I don't know, but even if it is, the fact that you've made your assumptions and your metrics so transparent and explicit is just so refreshing, and feels like such a step forward for social sciences and history.

Ian: It was kind of fun to do, as well. That's the main thing!

Julia: Excellent. Thank you so much for being on the show, Ian. It's been a true pleasure.

Ian: Thanks very much. Hope you have a good day.

Julia: You as well. This concludes another episode of Rationally Speaking. Join us next time for more explorations on the borderlands between reason and nonsense.