

Peter Turchin and Daron Acemoglu—The Growth of the Noosphere: Part Two

David Sloan Wilson: Daron, you begin with hunter-gatherer societies in South America, they were egalitarian. So the egalitarianism of small scale societies, what I want to emphasize is the importance of social control. That the reason that small scale societies are egalitarian is because they can effectively control bullies. And so this is what Christopher Boehm calls reverse dominance, basically. There's plenty of people that want to boss others around, but they can't because they can be collectively controlled. And so, social control, power really, is what makes small scale societies, past and present, because our series is covering current indigenous societies, so it's quite interesting, egalitarian. And then of course when the scale of society grew thanks to agriculture and so on, basically it resulted in power imbalances, and now you have your despotic environment. So it really does come down to power as I think we're going to elaborate in the present day. And Daron you've already indicated that that's where we're going.

Daron Acemoglu: Thanks, David. I mean, I think to me what's really amazing is the diversity of social organizations that humans have created over the ages. If you look at all the other species I know about, and I think the two of you know about more of them, but they have very constricted ways of dealing with social and environmental problems. Humans have demonstrated a tremendous range of ways of dealing with problems. And I think that is why institutions are so important because institutions are the ways that we create for dealing with each other and dealing with these problems. And at the root of it, like you, David, I think Christopher Boehm's ideas of reverse dominance hierarchies versus, the more alpha male hierarchies, that the interaction of these two, I think is quite foundational here. If anybody who looks at human history cannot be, but struck by the ability of our kin to live under extremely hierarchical institutions and at the same time, defend egalitarianism, very vigorously.

So it's sort of self contradictory. And the way that we resolve that self contradiction in some sense is by building different sets of institutions and sometimes those institutions bring out the hierarchy aspect. Sometimes they suppress that hierarchy. And of course, and I think Peter's work is very relevant here, demographic economic and social circumstances are very important for that. It's no surprise in some sense that maintaining that egalitarian ethos is much harder once you can accumulate assets. And once you have to engage in much more systematic, much larger scale wars, although there are examples of many tribal societies, including the Germanic ones and the Mongolian ones that, increase the degree of hierarchy in society during war times, and then reduce it thereafter. So there are ways of dealing with war that may not be completely despotic and hierarchical as well. But obviously the ability to accumulate assets, which takes a big leap, one of the punctuated equilibrium, I like that very much as Peter does together with settled life. The ability of hunter-gatherers and foragers to accumulate assets was extremely limited.

Once you have settlements that changes, that's going to complicate matters, it opens up a whole host of possibilities. And to me again, I guess this is one place there's a lot of overlap between what Peter has talked and my thinking here. In fact, probably I agree with 99.9% of what he said so far, but that's where I guess one place where we might start departing is, I think that confronted with the same challenges, different human groups are going to come up with different solutions. So the solutions that, say for example, you mentioned Josiah Ober's work or Josh Ober's work, which is fantastic and I'm very happy that he has featured in this program as well. If you just look at very similar conditions of 2,600, 2,700 years ago in the Greek peninsula. Well, the solutions that Spartans have come up with solving these problems is extremely different than those of Macedonians and that is extremely different again from the one the Athenians...

And then go just a couple of thousands of miles to the east and the ones of Persians come up with it's completely different as well. And I think that institutional diversity is what a lot of social science is about.

And it's truly fascinating. And one of the reasons why I think this sort of quantitative history is so difficult is because of that diversity. So I depart, for example, from the more common explanations that see some sort of environmental factors as almost defining, and when you transition to agriculture, et cetera, I think there's a lot of human agency in there. Which again relates to innovations of social organization, institutional innovations and other choices that societies make.

DSW: I'm really eager for both Peter and me to respond to this. I think I know what Peter's going to say so, I think we're going to deliver a one, two reply to you Daron, to show that, that 1%, we agree on that 1% also, but Peter, why don't you respond to Daron and then I will. I'm fascinated to know how this diversity basically, this inherent diversity in how cultures respond to their environments. Which basically provides the raw material for selection. It's the variation component of a cultural evolutionary process. So Peter, take your turn, I'm dying to take mine.

Peter Turchin: Oh no, I'm basically a 100 percent in agreement with what Daron has just said. So maybe build on this a little bit. So we are talking about institutions. So what are institutions? Well, there are different definitions, but one, I like is, it's a system of rules basically, that govern people's behaviors in certain situations, right? So for example, the institution of marriage, it tells what are the roles of the husband, the wife, the children, who has more power, has less power. And also there could be some ways to, typically there are some ways to enforce those roles. In terms of political institutions, that's where really things are becoming very interesting. And so to add to what Daron said, I agree that there is a huge variety of political institutions, specific arrangements that societies adopt to govern themselves. And this is really not biological evolution. I mean, yes, over the last 10,000 years, humans have evolved biologically, there's genetic selection, you know that.

But when we start talking about the organization of societies, it's really cultural evolution. So institution is a cultural trait. So traits, what's definition of traits? It means that there are at least two or typically more than one value. And so that's why diversity of institution is important is because there are many different types of institutions. And once you have such variable ideology, right now, we know from Darwin's postulates that there is possibility of selection, assuming that there is also two other conditions, one of them inheritance. And we know that inheritance works with cultural evolution because we see a lot of continuity, even the United States forming as a colony of great Britain has inherited quite a bunch of institutions from them. So inheritance is very important. And then selection, so different institutions, and that's where it becomes very interesting.

Different institutions are more or less successful and this is now we are talking about the core of Daron's and Robinson's book, that it's really human choices, individual choices are playing out within those institutions. And that's why institutions, different institutional setups have been so influential in determining the traits of societies. So this means that you have all three Darwin's postulates and so that means that cultural evolution can proceed and we've seen that. There's one, for example, one class of institutions is what you call the state. I mean, there are many different types of the state, but they're all characterized by having, let's say professional bureaucracies. They have territory that they try to control, and they also try to create some internal peace. So the states have arisen only in Mid-Holocene maybe five, six thousand years ago, but they've taken over the earth and this is an example of selection. So I think that I'll stop here and let Daron speak.

DA: So if I can add something, because I think it's complementary. I mean, I think you brought it to very nicely to cultural evolution and multilevel evolution that David already mentioned at the beginning. The way I think about it is that, absolutely, completely that cultural evolution is a very good framework for thinking about these issues. But we should really sort of think about three levels of cultural evolution. One is individual, I think what values, what social meaning individuals adopt. One is exactly group level, which you have emphasized already, Peter and David's work is central. What is good for groups? If your group is adopting some norms, some modes of behavior that are self-destructive of course it's going to

disappear and be taken over by others. But then the third, which is implicit in your discussion, but I think is important to emphasize is let's think of it as distributional, meaning that some of the norms and some of the institutions and some of the social meaning that we develop is because within a group it favors some actors, sometimes at the expense of others.

So I think there are many different ways of thinking of the transition to settled life in agriculture, many people early on and still think of that as a great human achievement. On the other hand, if you look at the data exactly like you emphasized, Peter, it looks like completely the opposite. People started working harder, their calories fell, their statures worsened, their health worsened, there was a lot less autonomy. So I think it's very difficult to make sense of it as a great achievement. Now, at least in the quote-unquote short run of about 8,000 years. But I think it makes much more sense once you start recognizing that, some people benefited more than others from that transition. Shamans, religious elites that were emerging and then political elites that were emerging, slowly but surely. So the costs were not completely equally distributed. And it's not about the group being successful, there's an element of that. But it's also some people within the group who have the power to influence also benefit.

DSW: That's multilevel selection. Welcome to multilevel selection.

DA: Exactly. It's multilevel, but I was emphasizing the three levels. Exactly.

DSW: Yeah, absolutely. There's so much to talk about here and so much of course to integrate. I want to make a point and here's where complexity comes in. Imagine that you take... I've done this as a biologist. So imagine that you assemble groups of organisms and you vary the initial size of the groups. It might be two individuals, it might be 20, it might be 2000, it might be two million. And then ask the question, at what point do these groups vary? And sampling error tells you that the larger the initial size of the group, then the less variation there'll be among groups. But when those groups are complex systems, then something else happens. And that's something akin to sensitive dependence on initial conditions like the weather, small differences between those groups is going to become larger and larger and larger. And so complex systems have a way of becoming diverse, variable, based on this process.

So now we're emphasizing the inherent diversity, basically of cultures, which we predict on the basis of complex systems theory should be scale independent, scale independent, no matter what the size of the society, we still expect this kind of butterfly effect that over time leads to larger differences. But then of course, some of these hang together and others fall apart and so basically you have this selection phase at various scales. And so when societies end up resembling each other, it's like, it is convergent evolution. It's just the same way that many different species evolve hard shells, many different societies evolve these functional attributes. They must, or else they'll fall apart. Now back to Teilhard. And Teilhard thought about human cultural evolution as a true kind of a phylogenetic group, like the birds, like the reptiles, like the mammals, like the dinosaurs, that's the way human cultures are.

And I think we've really come to appreciate the wisdom of that, that although not so long ago, people thought of there being like a universal human nature. And then culture was kind of a thin veneer on a universal human nature. A lot of evolutionary psychology reads like that. But now more and more we're realizing how much, the way we are is thanks to cultural, how much cultural differences in diversity, how deep it runs, all the way back to languages, for example, there's no universal grammar, there's just language evolved on different parts of the earth. They're quite different from each other morphologically. And what they share in common are based on the functional demands on needing to communicate. And I think that here's where I think Peter, you could talk briefly about the Axial age. Because there's a case where the historians talked about this phase of human history and what your retelling of that, or Seshat's retelling of that is much more of this separate, loosely linked, but separate developments in the evolution of the scale of society, which were cases of convergent cultural evolution. So let's spend a little bit of time on the Axial Age and then we'll transition to the present.

PT: Actually, I would like to start to pick up where Daron left this topic. So we are talking about who benefits. Obviously, in hugely unequal societies, there is a small elite, the proverbial 1%, who benefit from inequality and the 99% are the sufferers. Let's think about these early complex societies. They arose pretty much as a result of conflict between polities, between political organizations, and so that's why it was natural that military leaders buttressed by their retinue would be able to grab a lot of power. And so at that level, a military leader, the king, or the chief, would be able to coerce everybody else because they're organized, they're well armed they're well trained and so on and so forth. So, at the level of within group selection, we should see more and more inequality and inegalitarianism arise.

But let's not forget that this society that we are looking at does not live in isolation. There are other societies around it. And it turns out, that those societies, which are more egalitarian, and they still could be unequal, but they're not quite as despotic as the one that we are looking at. They actually turned out to do well, to do better at the business of war. And so that's one of the common ways that despots actually, they are deposed by losing the war and together with their own people, unfortunately, oftentimes.

So what we have here, you have the two forces of evolution acting in opposite direction within the groups. We see a force favoring more and more inegalitarianism and by the way, this is what let's say Thomas Piketty came upon. In the absence of that external competition. What we see is that inequality will keep growing and more and more and more until the size of society basically collapses under its weight. Because it so hugely unequal. But what happens is that societies don't live in isolation with each other, and so there is a natural evolutionary process that weeds out those dysfunctional, despotic societies.

And so back to the your question, David, now, I'm prepared to answer it. What happened during the Axial age? So first of all, what's the Axial Age? Axial Age is the first millennium BCE. All right, so the key period is typically 800 BCE to 200 BCE. That's when a lot of new religions, world religions, or philosophies, and so on and so forth.

We have a paper that is out in pre-print and has been submitted to the journal. It turns out that we can actually reconnect what happened, and the story's quite neat, obviously, simplified as well. But around 1000 BC, nomadic herders leaving north of the Black Sea and Caspian Sea, they figured out how to control horses. So they used the bits and bridle. And so suddenly we see like thousands of metal bits, just show up and spread through the great steppe and farming societies living south of it. So this was the beginning of cavalry. They combined horse riding with iron metallurgy so that the arrows were tipped with iron, and also composite bows which have been actually known for thousands of years. So, they created a weapon of mass destruction and put a lot of the farming society south of the steppe under really existential threat. So there was a huge uptick in the intensity of warfare and those societies had to do something or go under.

And they did a variety of things. First of all, they started building big armies of infantry men because they could not get enough horses. They came up with new ways of armor. So hoplite armor surely was invented during this time. They came up with new crossbows, but most importantly, they scaled up. They scaled up, and then you see huge empires such as the first one is the Persian, the Persian empire, but it was quickly followed by the Roman empire, and the Han dynasty in China, by the Mauryan empire in North India and so on and so forth. These were huge empires. They had tens of millions of people. Millions of square kilometers of terrain and new institutions, such as new religions that would allow them to integrate most of the...

DSW: And here's where the diversity comes in, basically, Christianity, Buddhism, Confucianism. These were different solutions, basically, to the same problem, each providing...

PT: Christianity is an offshoot of Middle Eastern monotheism, so Middle Eastern monotheism are first in the middle of the first millennium BC. Christianity and Islam followed this some of the timeline.

DA: So if I could, I think Peter gave an excellent account of the Axial Age. I mean, I completely agree. I just want to underscore what David said, and then perhaps disagree with one little thing that Peter emphasized, which I think is actually not unimportant. The first one is, I think, Peter, my reading agrees completely with Peter's that there were common shocks that especially took the form of changes in military threats and military technology preceding the Axial Age. But exactly like David emphasized, I think the solutions that different societies developed are quite distinct. Yes, there is some commonality that they're all trying to sort of regulate conflict, but the way that ancient Athenians are regulating conflict is completely different from the ones of the Israelites, and that's in turn is very, very different from Confucius and the legalism that followed it.

So I think that diversity is super important. And precisely because of that diversity, I disagree with one part of what Peter said, which is this inequality dynamics that somehow societies left to their own devices will increase inequality, and that external conflict sometimes is a limit on that inequality. I think that's also quite contingent. First of all, my reading is that the early phase of the conflict between settled agriculturalists and hunter-gatherers went the way of the unequal ones. Because of their population, agriculturalists were much better at obliterating the hunter-gatherers from many parts of the world. And that was a huge boost to inequality, of course. But, second, I think, many societies came up with different ways of limiting that conflict. I mean, none of those are perfect equal societies, but the Athenian solution, despite the fact that it was based on slavery in that polity was still much more egalitarian than the solution that the Persians came up with or the Israelites came up with, at least at first.

So, I think there are ways in which institutional adaptations can put a break on inequality. And there's a good reason sometimes for that, because inequality is also very destabilizing. I mean, the way that the Athenian polity or the Greek societies illustrate is that the Dark Ages and the aftermath of the Dark Ages were very high in conflict because of the birth pains of a new elite and what they're trying to do with land, and how they were marginalizing a lot of the regular people. Many of the institutional adaptations from Solon to Cleisthenes were actually ways of trying to control that, which ultimately meant reducing inequality. So, I am actually quite open to the idea. I think it's that sometimes we are going to find good institutions that can create stability and put a limit to inequality, but then those are not going to be universal either as the scale of society grows or the nature of the assets change. Some of those institutions are no longer going to be feasible, so we need yet more institutional innovations.

PT: Actually, I don't think we are disagreeing that much, because I also agree with you that it's internal checks on individuals that are very important. I'm just saying that it is the inter-polity competition, doesn't have to be warfare, but it could be competition in other ways. That's really what disciplines the elites within the society, who typically have enough power to control the population and continue accumulating power internally. But it's an empirical question. It would be very interesting. In fact, this is what's something that we are doing. We're trying to collect data to resolve precisely this question. When we see a new, more egalitarian institutions or fairer institutions arise, what are the conditions under which they arise?

DA: I mean, the nature of the technology, military technology, matters a lot. During the colonial period, for example, I think some of the warfare really favored the elites because it really enriched them, and it really required further military investments, but there are then other periods during which we see exactly more egalitarian tribes or bands bringing down empires. So, I think, it really does depend on the nature of the military technology as well.

PT: Remember that Athens was not living there in isolation. There was intense warfare. In fact, there was warfare pretty much every year. All right, and so that was the period when intense warfare between

poleis was actually driving the democracy within them, because the way to win in this war was to put a lot of hoplites into the field. And the way you did that, it was by giving them a say in the government and that's that... To me, I draw that causal connection.