



CULTURAL EVOLUTION AND CLIODYNAMICS

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Peter Turchin leads a recent academic movement to quantify and mathematize human history. That is, instead of analyzing history thematically, or engaging in broad analysis of happenings and trends, he aims to use processed data to prove hypothesized truths about our collective past. Turchin calls this new science cliodynamics (after the Muse of history), and I thought this effort was largely successful in his [Ages of Discord](#), in which the focus was cycles of stability and instability. I think the effort much less successful in [Ultrasociety](#), which tries to explain all of human history as inevitable cultural evolution towards cooperation; but still, it's an interesting, if bumpy, ride.



Turchin begins by telling us, accurately enough, that humans are unique in their ability to cooperate at scale. When Turchin says “cooperate,” he means individuals choosing to act in concert with others in pursuit of at least a modestly complex common goal, such as hunting. He says that cooperating only in small groups with known others is the norm among all primates, and that was once also the limit of all human cooperation. Turchin's bad habit of blurring inconvenient facts shows up early here, however—he ignores that cooperation among non-human primates is actually sharply different than that among primitive humans, so the smooth evolutionary line he is trying to draw from our most distant ancestors to us is not accurate. For example, Turchin does not say, but it is true, that non-human primates cannot even cooperate in small mechanical tasks, such as two chimpanzees carrying a log (they lack “shared intentionality”), and the very earliest humans apparently could.

Anyway, for humans, Turchin contrasts limited cooperation among hunter-gatherers with what is true in the twenty-first century, where some societies are now extreme cooperators, meaning they coordinate voluntarily across millions of people and many years to produce costly public goods (those to which equal access for everyone is the default; air is a public good, for example). Turchin's aim, therefore, seeing where we began and where we are now, is to explain how this happened “through the new science of Cultural Evolution,” which is a subset of his larger field of cliodynamics.

Turchin never offers a pithy definition of cultural evolution, but he means that cultures evolve through natural selection, that is, competition that drives one society to extinction and enhances the survivor. In an initial sleight of hand, in one glancing reference, Turchin dismisses as the cause of increased cooperation recent biological evolutionary changes such as those proposed by [Gregory Clark](#) and [Nicholas Wade](#). Considering that possibility would detract from his thesis of cultural evolution, but he is

too honest to reject the reality of biological changes entirely, so he ignores them instead. He traces back the modern version of cultural evolution to E. O. Wilson in the 1970s, and views his own contribution as adding data and mathematical synthesis, which gives “us the tools to analyze societies as coherent, integrated wholes,” strengthening what otherwise might be perceived as mere anecdotes.

In these introductory sections, Turchin previews the rest of the book by informing us that the driver of cultural evolution, more than anything else, is war, which paradoxically, after much tears and blood, creates “large, peaceful, and wealthy ultrasocieties.” (“Eusociality” is the instinctive large-scale behavior of honeybees and certain ants; “ultrasociality” is, we are told, the term for similar cooperative behavior by choice, only found in humans—thus the title of the book.) In short, therefore, this book is an explanation of why war is necessary for peace. I think Turchin is probably right in that, but I think he's wrong that humans qua humans have reached some unique level of beneficial cooperation in the modern world, and in fact it's pretty obvious we've either passed over into diminishing returns from cooperation, or discovered the hard-coded limits of cooperation. But more on that later.

To prove his claims, Turchin offers selected history from the past ten thousand years. He points out the [extreme violence](#) that characterizes all tribal hunter-gatherers (which all humans were ten thousand years ago, with some variations in societal complexity), from American Indians to pre-pharaonic Egyptians. No cooperation existed between tribes, rather a state of war. Turchin wants to offer an explanation of what changed and what made the cooperation of today possible. This is another way of asking how human societies became more complex than tribes, a question that has exercised very many great minds. The short answer given by Turchin's version of cultural evolution is that the need to not be wiped out led, in zigzag pattern, sometimes up, sometimes down, to greater cooperation and societal size. This is basically Francis Fukuyama's idea, and not new with him either, but Turchin puts an original gloss on it.

He sets the stage by complaining that cooperation has been declining in America, no doubt trying to offer a compelling hook to the casual reader. He does identify correctly that America is now a far lower cooperation society than it was in 1955. But he does himself no favors with his tendentious and wholly inaccurate capsule history of the last sixty years, in which he ascribes this problem to one cause—the ideology of Ayn Rand, filtered through and popularized by Friedrich Hayek and Ludwig von Mises, and politicized by Ronald Reagan, who channeled Gordon Gekko (occasionally spelled by Turchin “Gecko,” not lending confidence to the reader). This led to Enron, which was Very Bad. The ludicrous silliness of this trite and superficial analysis cannot be overstated—it completely ignores the several [real drivers](#) of

this decline, and grossly overstates the influence, and unitary philosophy, of dead European refugees.

Economically the global free market, in what is now in retrospect obviously a mistake, was indeed allowed to overwhelm America. But that's among the minor reasons that social trust and cooperation has disappeared; the rot of the elites and the dominance of leftist narratives are far more important, as I have discussed more than once elsewhere. Ayn Rand and Mises have no relevance to anything in 2021 America.

From here, though, Turchin improves (even if there's lots of bouncing around, and a distinct odor of cherry-picking, easy to do with archaic history). He discusses when it is rational to cooperate, most of all to produce public goods, and when it is rational to free-ride. (Answer: always the latter, absent some larger framework that changes incentives; contra Richard Dawkins, there is no biologically-evolved altruism toward strangers, and the "selfish gene" is a myth.) Team sports teach us about cooperation (although reader confidence drops again when Turchin refers to the University of Connecticut's women's basketball team as "famous" and its wins resulting in the campus "celebrat[ing] for days on end"—the former is not true, and I doubt the latter). For a team, maximizing individual performance (and therefore benefit to that player) will almost always lead to not maximizing team performance. According to Turchin, data across multiple sports shows that teams which have higher inequality of performance among team members perform worse, on average, than teams with less inequality of performance. Egalitarian cooperation, that is, on average maximizes returns to the group.

Then Turchin turns back to "the study of how and why the frequencies of cultural traits change with time." He talks about social trust (which he seems to treat as a subset of social cooperation, though I'd invert that), citing Edward Banfield's *The Moral Basis of a Backward Society*, which studied a mid-twentieth-century Italian village with very low trust (although Turchin is wrong that Banfield identified this as a trait passed down over the generations; he actually said the opposite). "Evolution," Turchin hastens to add, doesn't mean progress; it just means some change in an otherwise stable cultural system.

From these small-scale societal anecdotes Turchin generalizes a theory of "Multilevel Selection." He offers some basic (but confusing) math, the "Price equation" (a way to measure the generational effects of covariability), to show that given intense competition between groups, more variation within groups leads to worse outcomes, but more variation across groups leads to better outcomes—for the winning group, that is. "Variation" here includes degrees of cooperation; thus, if a group has more free riders

than another group has cooperators, the second group will, on average, out-compete the first (because, as for basketball teams, egalitarian cooperation is better). It will grow more crops, it will get bigger, it will win more battles—as long as the cooperators don't lose out to free-riders within their own group. To avoid this, they must suppress internal competition, and not allow free-riding within the group.

Having set the evolutionary scene through a mathematical lens, Turchin purports to apply it directly to human history. In this telling, projectile weapons were more important to human evolution, biological and cultural, than fire; they allowed felling large animals and eating the marrow, moving from scavenging corpses to making corpses (and helping to increase brain capacity). Humans were still hunter-gatherers, and fitting with Turchin's theory, hunter-gatherer societies appear to have been universally (and are today) notably egalitarian, with a "reverse dominance hierarchy" where the group strongly discourages attempted domination by any one person.

Why, though, when other primates have normal dominance hierarchies? Turchin says it was because projectile weapons allow those who set themselves up to be alpha males to be easily killed by the others—unlike among other primates, whose lack of such weapons invariably means an alpha male-headed hierarchy. This meant that evolution selected men (who of course still led, as they have led every group in human history, with zero exceptions) not so much for strength, but for social intelligence, the ability, among others, to build coalitions through cooperation. And in this process, when groups competed with each other, in war, those with more cooperators tended to win out, because of Multilevel Selection.

Cultural evolution isn't inevitably the result of intense inter-group competition, however. Turchin details the constant warfare of the New Guinea highlands, which continued into the modern era. No cultural evolution resulted at all; some war is just counter-productive, leading to endless death with zero change. For the most part, such wars are either wars within societies or inconclusive wars, as both of which Turchin counts New Guinea wars. He also goes on a pages-long digression, an attack on Victor Davis Hanson's claim that the "Western way of war" is a "decisive clash with close-range weapons." Turchin says this is a "delusion," and all that matters, or has ever mattered, in warfare is long-range weapons, in the West and elsewhere.

But, paradoxically, egalitarian hunter-gatherer societies evolved, zig-zagging, not to larger egalitarian societies, but to the most extremely non-egalitarian societies in human history. Turchin uses the

example of Hawaii, where a version of god-kingship evolved, in which lower caste people were often killed for looking incorrectly at the king, or sacrificed in religious rituals. Most or all archaic societies developed in a similar strongly inegalitarian direction, including the earliest human civilizations in Mesopotamia. Turchin ascribes this to the development of agriculture—not at the inception of agriculture, though. He claims that small-scale agriculture, with societies still egalitarian yet capable of cooperation, prevailed for thousands of years before larger archaic states came into being. He ascribes this stasis to people resisting inegalitarianism; his perspective is basically that of James C. Scott (whom he does not cite), that the agriculturalist is much worse off than the hunter-gatherer.

Still, societies gradually moved toward being more agricultural and less egalitarian, even against the interests of most individuals in the society. Why did societies so develop? War—bigger societies win against smaller ones, and a bigger society only works if you culturally evolve to cooperate, to produce crops, among other things. Societies that don't cooperate get exterminated, using the Price equation. And you can have top-down cooperation; Turchin is not using "egalitarian" as a synonym for "cooperative," although he frequently blurs the difference in a confusing way.

Turchin offers an unconvincing explanation for why it took thousands of years for this cultural evolution to happen, alleging that anyone trying to grab power was assassinated until "new cultural methods for legitimating" the power of chiefs evolved. He uses the example of the Germanic tribes and Arminius, who was assassinated despite his success against the Romans, and concludes "there must have been thousands of upstarts in human history who failed to make the leap to a permanent kingship." Then he ascribes success to "avoiding arrogance and cultivating modesty [and] demonstrat[ing] to the people that the hierarchical social order is preferable to the alternative." Turchin rejects alternative explanations of the masses voluntarily giving up egalitarianism, such as the need for irrigation, economic benefit, or the masses being hoodwinked.

Still, in these early years of the new agricultural mega-societies, those men at the top who were successful in war somehow managed to achieve the right aura to become god-kings, the top of the heap. These god-kings behaved in terrible ways, unrestrained by any moral code, including as a rule "massive human sacrifice." Cultural evolution nonetheless proceeded; competition among these new larger societies led some to survive and some not; "by eliminating poorly coordinated, uncooperative, and dysfunctional states, [this process] create[d] more cooperative, more peaceful, and more affluent ones."

So in a sense the societies of god-kings “worked.” But their reign of personal terror was ultimately tempered by the spiritual awakening of the Axial Age—not ended, but refocused onto the well-being of the people. The Axial Age, a term coined by Karl Jaspers, began roughly at the same time as the Greek archaic age (800 B.C.) and lasted for six hundred years, or so. Jaspers's, and Turchin's, theory is that a great spiritual awakening took place all over Eurasia during this time, everything from Confucianism to Zoroastrianism, commonly in connection with a clearer separation between the gods and men, and in particular introducing the idea of gods who monitored and cared about human behavior (thereby increasing trust as a result of fear of displeasing the gods). Turchin refers to this as a “universal egalitarian ethic” and says that the god-kings changed their ways as a result. That claim is pretty dubious, given the massive differences among the cited religions (or philosophies), and Turchin ignores inconvenient examples not fitting this claim, such as the Greeks and Romans during the Axial Age.

At the same time, horses, iron, and archery allowed the expansion of horse warriors on the Eurasian steppes; these threatened the existing agricultural empires, wherever they were on the egalitarian scale, which responded with further cultural evolution towards cooperation to meet the new threat. Those societies that failed to adapt in this way, such as the Assyrians, disappeared. States therefore continued to increase in size—and the new Axial religions assisted by gluing multi-ethnic empires, such as the Achaemenid and Mauryan, together, allowing “imagined communities” to arise.

We then skip nearly directly to the modern era, with a lengthy pause to attack Steven Pinker. Turchin rejects Pinker's theories in *The Better Angels of Our Nature*; he agrees that violence is down; he just denies Pinker's claim of a smooth decline over the ages, and rejects Pinker's claimed drivers, in favor of, no surprise, increased cooperation, and a direct correlation and causation between increased cooperation and decreased violence. Pinker has, apparently, attacked cultural evolution (he instead, like Dawkins, points to the desire to help kin and reciprocal altruism as the origin of cooperation), so Turchin is here repaying the favor; the result is fairly boring inside baseball. (And again, Turchin does not inspire confidence when he refers to the eighth to twelfth centuries A.D. in Europe as “a period of retreat of reason also known as the ‘Dark Age.’ ” One wonders if his history knowledge is anything but surface deep; there is little evidence it is.)

Now we have arrived in the twenty-first century. Turchin uses as his exemplar of modern human ultra-cooperation, the claimed pinnacle of human achievement, the International Space Station. In a sense this is true (even if it's mostly a United States achievement); the ISS is shiny and fancy, and nobody could make and operate such a machine a hundred years ago. But the ISS also shows that cooperation

is not a good in itself; what it produces matters. And the ISS is a dead end, a waste of space, a sink of corruption, and an anchor weighing down human achievement. You never hear about the ISS, because there is nothing worth talking about. Not to mention that government by committee, which is the nature of the ISS, never accomplishes anything except dissipating resources. The ISS is basically a bigger, and not especially better, Skylab—which fell to earth in 1979. It has cost around \$200 billion (mostly funded by the United States), with nothing to show for the money. Turchin says “What needs to be destroyed [through cultural evolution] are those cultural traits that make societies less successful—less cooperative, less internally peaceful, and less wealthy.” But what if cooperation, past a certain point, leads not to success, but to stupidity, waste, and retrogression? That's certainly what it's led to in the case of the ISS.

Turchin's other examples of modernity's cooperative achievements fare no better as proof of progress. CERN (the particle accelerator) is nice, I suppose, and I like scientific research, but it's been going on for many decades without pushing the human race forward in any meaningful way. And the United Nations?! Please. I could write ten pages on that, but really, does any sensible person think the UN does anything of value? No, it's a combination of cover for thug regimes, and a poisoned spear used by the global elite to forcibly infect countries with globohomo. In both cases, it's not some impressive example of cooperation; it's an engine of corruption and backward movement.

Thus, modern humans simply don't cooperate for worthwhile purposes on the unprecedented scale that Turchin says. Most large-scale cooperation produces merely diminishing returns and bureaucratic sclerosis; look around. Does the now more than one trillion dollars spent on the Department of Education make you feel good about our ultrasociety's accomplishments? In fact, history shows societies only effectively cooperate on the scale of the nation-state (or smaller)—and almost always only where there is a starkly homogenous culture; Turchin ignores that the Price equation implies that more than a small amount of diversity, along any variable tied to societal cohesion, is likely fatal for a society.

Moreover, the only cooperators with a lengthy track record of any cooperative ultra-achievement are Western countries. Many non-Western countries have cooperated to a reasonable degree for centuries, and what have they ever added to humanity? Nothing of any importance. There also exists no worthwhile global-scale cooperation, whatever Turchin optimistically claims, and none appears on the horizon. The Wuhan Plague turned out to be not very important as a plague, though very important for other reasons, but certainly global cooperation wasn't the response, even among Western

countries.

Turchin, a prolific and ambitious author, didn't write this book as an isolated project. As he discusses, ten years ago he started a "global history databank," named [Seshat](#) (after the Egyptian god of scribes), to collect and code historical data. The goal is to mathematically analyze the data collected to prove (or disprove) theories tied to cliodynamics. This sounds good, but it's not clear to me such a project makes sense.

In *Ages of Discord*, Turchin tied certain quantifiable indicators, such as elite overproduction, to societal changes, and predicted the 2020s would be a decade of chaos. That he seems to have been right makes that effort seem prescient. But the far broader application of mathematics Turchin tries here doesn't convince the reader of anything that wasn't already obvious, and my expectation is that Seshat has the same impact. I could easily be wrong, though, and whatever my reservations about this book, it makes one think about both our history and our future, which is certainly something beneficial.

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The [featured image](#) shows, "Ice landscape," by Hendrick Avercamp, painted ca. 1610.

