

Text Summary: Interview with Edward Slingerland (September 9, 2021)

Collaboration in Human Societies

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Welcome to the Ernst Strüngmann Forum podcasts—a series of discussions designed to explore how people collaborate under real-life settings. Joining us in the series are high-profile experts from diverse areas in society, whose experiences will lend insight to what collaboration is, what it requires, and why it might break down. This series is produced in collaboration with the Convergent Science Network.

P. Verschure This is Paul Verschure and together with my colleague, Julia Lupp, we will be speaking with Edward Slingerland about how humans have collaborated over millennia. To begin, could you give us a sense of your background?

Ted Slingerland This is the million-dollar question. How did I get here? It actually is not as strange as it seems. My specialty is early Chinese philosophy and comparative religions. My Ph.D. is in religious studies and I've done a lot of work, as Julia knows, on the cognitive science of religion and the evolution of religion. I'm interested in a couple of questions. At a very broad level, I'm interested in mysteries hiding in plain sight. When it comes to the evolution of religion, as a scholar of religious studies, we study religious diversity. We study how people differ across the world in their religious beliefs and practices, the history of religion. We very rarely stop and look at religion and ask, why do people do that? And when you do that, it's a puzzle because religion is really costly. It's costly at the individual level: observing taboos, going to church, scarifying yourself, cutting off the foreskin of your penis. And it's very costly for cultural groups: these large-scale societies that build massive pyramids that have no practical function. In ancient China, a significant portion of the GDP just went into the ground, into these massive tombs where they put a good 20 percent of GDP. They just buried it and made it unusable by living human beings. You would think that individuals and cultures that didn't go in for this kind of waste, especially on such a large scale, would do better than groups that do it. A group that—instead of building a massive tomb to the first emperor of Qin and building a terracotta army that they then buried in the ground—actually armed a real army, you'd think that they would defeat the group that made the fake army and buried it. But they don't. All large-scale societies we know of go in for religious waste, if you want to think of it this way on a large scale. And so, this is where we got interested. Well, there's must be functions, positive functions that religion is doing for groups and for individuals that pay for the cost. And that's where our big project on the cultural evolution of religion got started. I started to think about alcohol in the same way: chemical intoxicants in general, but particularly alcohol. It's incredibly costly. It's physiologically costly for individuals. It causes liver damage, raises cancer risk, and we think probably a good 15 percent of the human population is prone to alcoholism. They're unable to use alcohol in a safe way. It causes lots of group problems, social chaos; alcoholism causes lots of societal problems. It sucks up a huge number of resources. In ancient Sumer, the estimate is that half of their grain production went into making beer. They're taking nutritious, healthy grain and turning it into a low-dose neurotoxin. It's kind of puzzling. The other puzzling thing is that we've been doing it for a long time. So, the standard story about alcohol is that it's an evolutionary mistake. Alcohol is just hijacking reward circuits in our brain that evolved for other reasons. There are certainly evolutionary mistakes. Our taste for junk food is a good example. That's a classic mismatch mistake where it was once adaptive to like fat and sugar but now in some parts of the world, in very recent times, it's become a problem. Another evolutionary mistake I talk about as a type of hijack is masturbation or just nonreproductive sex. We get this great reward from evolution for reproducing. But we figured out a way to game the system and we get away with it. But, you know, in these cases and particularly with the junk food example, it's a very recent problem and still geographically constrained. There's still lots of places in the world where getting enough fat and sugar is a problem for people.

And with the masturbation example, it's not very costly and it doesn't, contrary to what people may have been taught as children, make you go blind. It isn't physiologically costly, it's not costly to society, unlike alcohol. Alcohol does make you go blind if you drink enough of it. And we've been producing alcohol for as long as we've been doing anything in an organized fashion as a species. In my recent book, [Drunk](#), I explore this beer-before-bread hypothesis that argues that humans were gathering, and making beer and having these big religious rituals—which we don't know much about the content of—thousands of years before we had agriculture and that in fact, it was the desire to make more and better beer and wine that caused people to start settling down and cultivating crops. In this regard, the desire to get intoxicated actually very directly gave rise to human cultures. It follows naturally from work I've done before: both trying to explain a puzzle, something that should be puzzling, that doesn't puzzle us enough, and then trying to look for what the functional role might be. And I assume one of the reasons you invited me here is because a lot of the functional roles revolve around cooperation.

P. Verschure You have a background in Chinese philosophy and the study of the cognitive science of religion. What are the intellectual tools you bring to bear on this challenge? That's why I always like to understand the trajectory. Are Chinese philosophy and cognitive science the perspective that you take here, or are there other elements that we should consider?

Ted Slingerland I trained originally as a humanities scholar, as a historian and a linguist, a sinologist, so I'm bringing those tools to bear: the tools of the historian and linguist. But then after graduate school, I found myself getting drawn by the cognitive sciences. Cognitive linguistics at first—how metaphors work in the mind—and that got me interested in how metaphors work, and behavioral neuroscience. That got me interested in why the brain is structured the way it is, like the evolutionary theory. So, my tool kit now is very much gene-culture coevolutionary theory. I'm using the tools of a historian and cross-cultural historical surveys, but then analyzing what I'm seeing, using the tools, using the theoretical framework of gene-culture coevolution.

P. Verschure Right. But in our case, the questions are around collaboration, and earlier you also mentioned cooperation. Do you differentiate between the two or do you see these as different words, same phenomenon?

Ted Slingerland They overlap quite a bit. Although religion has some similar effects, let's take the example of alcohol: It does two important functional things. It enhances creativity, individual creativity, but also group creativity, which may be more in the collaboration bucket. One of the functions of alcohol is to downregulate, to turn down a few notches, our prefrontal cortex (PFC). The PFC is important for pursuing rational self-interest, for controlling emotions, for staying focused on a task. It's a super important part of the brain, but there is pretty good evidence that it interferes with creativity, it interferes with lateral thinking, which is why kids, for instance, are much more creative than adults because the PFC in kids is not very developed. One of the things alcohol does is essentially return us temporarily to being like a kid. It turns down our PFC a few notches so we can regain some of that cognitive flexibility we had as children. But then what it's also doing is disinhibiting us and pumping up feel good hormones. Our serotonin, endorphins, are getting boosted and so we're feeling both better about ourselves and better about other people. We're feeling more likeable and we're also liking other people more. And I think that combination is crucial for collaboration. One of the things I argue is that there's a good reason that successful organizations use alcohol in professional contexts. When you're getting groups of individuals together who maybe have different types of training, they may not know one another, but you want them to spitball things, to come up with new ideas. I mean, the Ernst Strüngmann Forum does this, right. We work all day, but then we go out and drink. It's a crucial tool. I argued when we got this big partnership grant from the Canadian

government: SSHRC [Social Sciences and Humanities Research Council], our federal funding organization, will not pay for alcohol. I went separately to my dean and said I cannot run a huge international collaboration without alcohol. I need to be able to get people, sit them down, downregulate prefrontal cortices, get them to trust each other, and talk more. And I actually got a kind of separate slush fund from my dean that I could use to pay for wine. And it was crucial. I mean, in fact, that grant itself came out of a collaboration that started because we finally got a pub on campus. At UBC [University of British Columbia] we didn't have a place for grown-ups to drink. There was a grad student pub. Then I think in 2010ish, this pub opened up right near the bus loop. And it was very easy to stop there on your way home from work. And Joe Henrich and Ara Norenzayan and I and some others, Steve Heine, started meeting after work and chatting about, oh, I'm interested in religion too, and I have this type of expertise. I don't think that the collaboration would have gotten off the ground without that 0.08 BAC (blood alcohol content); 0.08 BAC seems to be the sweet spot. Like a beer or two in.

P. Verschure So, you're saying, alcohol, this slight suppression of prefrontal cortex can facilitate collaboration. But then what is collaboration? How would you define it and what is it good for?

Ted Slingerland Collaboration is, I think, pursuing some sort of dimly envisioned goal in a cooperative manner where different individuals are bringing different strengths to the table. So how I see collaboration in our grant: I was a historian. I was a religious studies scholar. I had knowledge of the content of religions historically across the world that say Joe or Ara didn't have. Joe had gene culture, a coevolutionary theoretical framework that he was bringing to the table. Ara had expertise in psychology of religion and experimental evidence about religion. And then we had a vague sense of, hey, we want to do a big project, and here's a couple of questions that we think are cool. Like, why do people build big monuments? Why do people sacrifice to invisible beings? And we just started talking...and so I think that it's a dimly perceived goal, because the goal—I'm thinking of good collaborations—the goal is not set in stone and usually it changes a bit in the course of the conversation. But, yes, I think, I mean, at least in an academic context, collaboration is about some shared questions. You have some shared questions that interest you all, but you have different tools that you're bringing to the table.

P. Verschure If we now go back to your earlier example on religion, and you were also describing that as entailing massive collaboration to build monuments to your gods.

Ted Slingerland Sure.

P. Verschure So how do you see this relationship between religion and collaboration? Is collaboration a necessary feature to build your religion? Is your religion a necessary feature to scale your collaboration?

Ted Slingerland I haven't thought that carefully about this distinction between those two things, but I would see...so, we can talk about Göbekli Tepe. This is a site in present day Turkey where hunter-gatherers, long before agriculture, were coming from all over. They were converging on this site and they were what I would call cooperating. They were cooperating to build this massive ritual site with these huge stone stelae that they would cut out of the rock and drag long distances, and erect, and carve. They would capture game and they would have large feasts. And they were also almost certainly making huge quantities of beer. There were these huge vats that were used to contain some liquid. And we know people were making beer in this part of the world at this point.

P. Verschure But is this before the Neolithic?

Ted Slingerland On the site, the dates are a little bit disputed, but somewhere between ten and twelve thousand years.

P. Verschure OK, so it's different.

Ted Slingerland Yes, right at this shift. I'd call it cooperation in the sense that you'd have to presume there's some group whose in charge and they know that they want to build the site for whatever religious reasons they have, and then they're having to get the cooperation of the workers to do it, all these people to work together and do it. And clearly, one of the ways they did this was by providing beer and providing feasts. This is something we see in traditional societies around the world: if you have a large-scale public project that needs to get done, in the era before you had unionized workers and wage labor, you do it either by enslaving people or by enticing them with feasts, with alcohol and food. And so there you have people cooperating. So maybe I'd call it less collaboration because it's not clear that the people building the site had a lot of input into the design or what it was going to be used for. But people need to learn to cooperate on large scales. So, the second: I talked a little bit about this creativity function, another function of alcohol is to help us. I call it a kind of cognitive disarming. Humans in cooperation situations often face cooperation dilemmas, prisoner's dilemma type situations. You're going to get the best payoff if you trust the other person. But you don't usually have a way to ensure that they're trustworthy, that they're actually going to cooperate. And the rational strategy is to defect. Rational agents will defect, but they'll get a suboptimal outcome. And real human beings solve prisoner's dilemmas all the time. We cooperate, we don't snitch on each other, we help each other move couches, and do all these things where we don't have any guarantee of a payback. One of the ways you get people past prisoner's dilemma situations is religion. You get them to trust each other because, "hey, we all believe in the same god" and how do you know I believe in that god? Because would I tattoo my face if I didn't? Would I cut off the foreskin of my penis if I didn't believe in this god? We do costly signaling in the context of religion to create trust, to create in-groups that can cooperate the way that blood relatives can cooperate. That's one way to do it. Another way to do it is alcohol. And those are often used together. They're synergistic in this respect. So, alcohol is...a similar set of functions for a different goal. By slightly suppressing the PFC, it's making it harder for you to lie or to cheat. Lying is cognitively a very difficult task. You have to keep in mind both what reality is and what you said reality was. You have to be able to suppress leakage: facial expression, emotional leakage that would be counter to what you're claiming reality is. Lying is very difficult and it is totally PFC driven. If you're PFC is impaired, it's harder for you to lie. That's kind of intuitive. What's a little less intuitive is people are better lie detectors when their PFCs are turned down a few notches. And that seems to be because we think we know how to detect lies, but we don't. And so if we're using our PFC, we're likely relying on something we saw on a Sherlock Holmes show. We're looking to see if he looks left when he talks. And that's not really what you need to look at. You need to look at a bunch of big bandwidth data: facial expressions, tone of voice. And you're better at doing that when you're a little relaxed and you're not consciously trying to do it. So, I argue that if you have a bunch of hostile, potentially hostile people, for instance, and you need to sit them down and get them to agree on something, what's the one thing all cultures across the world do first? They get them drunk, or they use kava or some other intoxicant that has very similar effects.

P. Verschure But you mentioned several things that we should try to elaborate on. One of these is the linkage between religion and collaboration. And in some sense, you interpreted that in terms of sharing a common value, like we have a similarity which is expressed in our religious commitment and I'm showing you my religious commitment because like you, I have my face tattooed with something or other. Or you compare genitals; you show what has been done to them. But is that enough? Because if you analyze religion, you might also see incentive structures that would coerce people into collaborating, because if you don't help the "other," you would be acting against the fundamental laws of your religion, if that "other" is a member

of your religious group. So, there is this issue of common identification with some upper, an über-being, or is it also the adoption of a much more complex, if you want, cognitive structure of rules of conduct?

Ted Slingerland It's probably both, and they're probably both contributing. The way I'd rephrase that is, you can imagine, one force is a bonding, creating trust. So, I feel connected to you. I'm internally motivated to cooperate with you because I have come to see you as a brother, as a brother in our religion in some way. So that's internally motivated. You can also imagine, and this is one of the things that Ara Norenzayan has done a lot of work on, that if I believe that if I don't cooperate I'm going to be punished in the afterworld, or I believe that God can look into me and see if I'm lying or not, that's external sanction based. Essentially what you're doing there is you're removing the prisoner's dilemma problem because I can't...I don't know if you're going to cooperate or not, but if God knows and God's going to take care of whacking you if you don't cooperate, then it's not a dilemma anymore. So yes, both could be working with other forces.

P. Verschure That raises an interesting question. The two interrelated questions are: Why and what are the intrinsic drivers of collaboration that are genetically predefined and picked up during evolution, and how has human culture elaborated on that to scale it? How do you see that linkage between intrinsic drivers through collaboration and the further expansion for scalability?

Ted Slingerland We intrinsically are motivated to cooperate with kin and then less so with unrelated people we know and have reciprocal relationships with. Kin selection and reciprocal altruism drive a lot of behavior across the animal world. And that's one of the things humans just get for free. In terms of scaling, one of the things religion is doing is exploiting that psychology, but expanding, for instance, the scope of kin. It's one of the reasons that religions tend to use kin-based language to talk about coreligionists. You call each other brothers and sisters. You talk about God as your father or mother. You're tapping into something that you get for free, just for being human, for being any type of animal that reproduces, but expanding the scope of it. So that's one very easy way to do it. A lot of religions also have painful initiation rituals and going through a painful experience with another person also creates bonds, and that is probably tapping into some basic built-in stuff. But cultures have figured out how to get it wrapped up so that you can have that feeling of brotherhood or being bonded with a much larger group than you would typically get in a small-scale society.

P. Verschure So would you be able to, given the work you've done, see common features across the main religions of the world?

Ted Slingerland Absolutely. And especially in what we call prosocial religions. What you get for free out of human cognition when it comes to religious cognition is supernatural beings. Humans seem just prone to over-projecting agency onto the world. The storm comes and destroys our fishing vessels. We don't think, oh, random cause and effect, mechanistic world. We want an intentional story about it. So, the sea god is angry at us. We can do something. Projecting intentionality onto the world seems to be something we do naturally. What this gets you is not what prosocial religions look like. What it tends to get you is what most small-scale society religions look like. You've got a bunch of gods. They typically have different areas. They're in charge of the sea, the sun. You've got ancestor offerings and ancestor spirits you need to placate. But it tends to be that they're not typically moral. In most small-scale societies, the gods don't really care about human collaboration, if you want to think of it that way. The gods just want their stuff. The ancestors want to be fed; the gods want to be revered. The Greek Pantheon is a bit like this, right? The Greek gods are just messing with people, and they get it. If they don't get revered, they get angry. They're certainly not moral. We think that a new

development is when you get this idea that the gods actually care about us collaborating; essentially, they care about prosocial norms. They don't just want stuff. They don't just want their sacrificial goods. They want us to be good to one another. They want us to be generous. They want us to not lie. They want us to not violate social norms. That's an innovation. Another innovation is an expansion of surveillance. So often small-scale society gods don't know what's happening outside the village, for instance, where they don't know what's happening in the dark. If you get the idea that God knows everything anywhere in the world, past and future, then God can also look inside and not only see your behavior but see your motivations. That's a very powerful idea. If you have the idea that God can watch you everywhere you go, it's a very powerful idea. If you have costly rituals where people are doing things in synchrony, and they're typically consuming chemical intoxicants at the same time, then they're creating bonds with one another. They're making but they're also signaling. They're making costly signals to one another that make everyone feel like I can trust that he's really part of our group. These are all cultural innovations. Our argument is that with the forces of cultural evolution, in the same way you get with genetic evolution, you get convergent evolution; dolphins and sharks look similar, even though they have very different genetic histories. Around the world, when you get large-scale societies, you get common features and religions. And this is the result of convergent evolution in a sense.

P. Verschure So earlier you also indicated that at the edge of the Neolithic, hunter-gatherers started to have more collaborative processes, or collaborative, cooperative processes. And you could argue that this could be handled with standard hierarchical-power relationships. Within that context, what problem is religion then solving? How would that boost that process? What's a unique feature of religion that adds to this? Is it that it also gives you the ontological frame to look at the unknown, to go beyond the standard human power relations? What's that added feature?

Ted Slingerland So, the people who are building these sites, places like Göbekli Tepe, are cooperating on a much larger scale than is typical for hunter-gatherers. This is not a small-scale society anymore. They're actually cooperating to build the beginnings of what creates agriculture in large numbers.

P. Verschure What kind of numbers are we looking at?

Ted Slingerland That's a good question. Probably you needed at least about five hundred people at a time to be moving the stones and erecting them; much larger scale cooperation than you'd get in typical hunter-gatherer bands. They're coming together; they probably don't know each other well; they're coming from different regions. What you're getting at Göbekli Tepe, for instance, are different parts of the ritual site that have different animals that are featured. One area may have crocodiles predominating, for example. One of the theories is that this is a kind of totem animal. You're giving people a new fictional identity that's linked, as you say, to some kind of ontological claim about the world. So, you have this idea that there's a Crocodile God and the Crocodile God wants X, Y, and Z, and we, who all tattoo ourselves with the mark of the crocodile and worship the crocodile god are brothers in a significant way. We can trust one another. We know we can meet someone far away from the ritual site but greet them in a way that shows that we are worshippers of the Crocodile God and therefore we know we can cooperate right away. Religion is giving you this tool that allows you to scale up cooperation on a level that you just can't, we think, get without it.

J. Lupp I want to go back. You've raised the issue of trust several times and perhaps Göbekli Tepe is a good point to discuss this. Because we're going to be looking at what makes collaboration succeed and what makes it fail. If we were to imagine a large hunter-gatherer, do you see this religious institution as providing a sense of trust that the individuals in the group will do a collaborative project without questioning the leaders who are in charge? This concept of the

supernatural, whether you're going to add punitive measures or not, notwithstanding, does it give a structure to the collaborative effort or the cooperative effort?

Ted Slingerland It gives a shared narrative, typically, about why you're doing what you're doing, so everyone's on the same page in terms of what the goals are and why. And it gives you this trust that people are internally motivated to cooperate and not relying on sanctions. The reason we can solve a cooperation dilemma is that I know that I'm pulling on my end of the rope, but I can't see my buddy who's on the other side and I'm trusting that he's pulling too, and not just sitting down resting, or having a snack. How do I know that? Because I know that he is possessed by the same love and reverence for the Crocodile God that I possess. It gives you some assurance that the other members of your group are internally motivated to collaborate and to cooperate in a way that's not reliant on sanctions.

J. Lupp It provides social cohesion.

Ted Slingerland Yes. There are other ways you can get it. One of the things that Ara has argued is that once you get into modern, industrial societies, it's possible that rule of law could take over some of the functions that religion used to do. And maybe nationalistic values can give you the same kind of sense of shared goals and shared identity. And maybe that's when you're going to see organized religion start to wither away because the functions are taken over by other structures. But around the world, the way we see it happening first tends to be with religious beliefs. I think it's because it's a very effective way to tap into some basic cognitive tendencies we already have but push them in a certain direction.

P. Verschure In that case, we could look at three stages of the scaling of human collaboration. Because first we have hunter-gatherer, then we add a religious layer to find scaling, and then possibly the nation-state might become the next step in that scaling. But that raises the first question: Are we aware of any massive religion that failed?

Ted Slingerland Religions that fail. I don't think so because we just don't know. We don't know about them because they're gone.

P. Verschure But this is interesting, right? Because it's not that the written record is that short.

Ted Slingerland One of the things we're building is a big project that I'm running called the Database of Religious History. Ultimately, one of the goals of the database is to try to answer that question by looking at periods of history when we have enough data to understand why a group failed. Take nineteenth-century America: there were a lot of new religious movements that arose; for example, utopian communities. But a lot of them failed. Some, however, Mormonism, for instance, Church of Latter-Day Saints, does well. You could also look at the period when Christianity arose—when a lot of prophets emerged, preaching different things. Most of them failed to take off, but one of them ends up doing well. What we want to do is to try to gather as much data as we can about the beliefs and practices of these different groups to see if there are common features to distinguish those that do takeoff and become successful vs. the ones that we don't know about today, except through historians who study these obscure archives.

P. Verschure But you could say that the Judeo-Christian religions conquered the world that was then dominated by the Roman religion or Greek religion.

Ted Slingerland Now, you could say so. You also want to look at how certain religions supplant others. And we want to be able to trace, for instance, the movement of Buddhism. Buddhism is another of these world religions that arises from a time and place, outcompetes religions around it and then gets spread to China. China is a good example because we know a lot about what's happening in China before Buddhism comes. We know a lot about Buddhism in India. Then we're going to be able to basically see what happens when Buddhism comes to China. How

does Buddhism change, but also how does it change indigenous Chinese religions? And there's going to be a two-way street there. It will be interesting to see if there's a common trend to the way that world religions tend to shape cultures in which they're transplanted.

P. Verschure But in the context of our discussion today, you could also argue that if religion emerged to scale collaboration, is it then so that Judeo-Christian values were more effective in scale and collaboration than the Roman copy of Greek religion?

Ted Slingerland You could argue that, but I'd be interested in what the features were. Some of them are, I think, kind of obvious. You've got a high god that cares about morality. You have other very successful religions. Buddhism and Islam have also been quite successful in terms of becoming world religions that spread to new regions.

P. Verschure I was going to ask you about this. I was hoping that you could articulate then what these distinguishing features could be.

Ted Slingerland So, a moralistic God. The Greek Gods and Roman Gods tended to be amoral. Not entirely: they cared about certain things, like honoring contracts. They certainly cared about you honoring the civic structure and the rulers, but they tended to be generally amoral. They just wanted, like small-scale society gods, their sacrifice and they got angry with you if you didn't do it. You have this new God who actually cares about whether or not you lie and steal and gives you some commandments and is preaching the idea of brotherly love and to treat strangers as brothers. This is arguably more effective at tying people together. The idea of supernatural punishment seems pretty powerful. The idea that there's a heaven and hell and you're going to have certain consequences, or in the Buddhist context, that there's a law of karma that's going to affect your rebirth. So, there's a collection. We have a piece in *Behavioral and Brain Sciences* from 2016, where Ara (Norenzayan) is the lead author, [The Evolution of Prosocial Religions](#), and we pick out a series of these features: prosocial, moralistic gods, supernatural monitoring, costly displays. There are about five or six key features around which we think the various successful religions seem to converge.

P. Verschure Are these features those of immediate relevance in boosting collaboration?

Ted Slingerland If I'm told that God cares about whether or not I collaborate well and sincerely with another person then that's going to immediately ramp up collaboration. Monitoring costs: real humans are going to go down. I'm going to be spending less of my time monitoring your behavior, if I'm confident that God is monitoring your behavior, and that you believe that God is monitoring your behavior. It's going to free up a lot of energy for collaborating and cooperating rather than monitoring and sanctioning people.

P. Verschure But now I could also turn it around and say, look, this notion of explaining the intentions in the universe, or the projected intentions in the universe through religion might also be a great tool for a vicious genius to control large groups of people. That would mean you build pyramids as a necessary step in building a coercive society, and you build in these rituals, and you make people believe certain things. Then the religion is not the driver of the collaboration, but it's a tool that is used to coerce collectives to engage with, or to serve the goals of others. Would you accept this of dual use of religion?

Ted Slingerland Absolutely. Hierarchically the move from hunter-gatherer life to living in large-scale societies sucked for most people. Your quality of life went way down. Hunter-gatherer bands, at least in the Levant and the Golden Triangle, were pretty egalitarian. Hunter-gatherer lifestyle was probably a lot more pleasant than early agricultural life. You had a much more varied diet; you had much more interesting tasks to do. Hunting and gathering is more interesting than building a pyramid or tending to grain. The move from small-scale societies to large-scale societies was

probably a happiness and quality of life loss for most individuals. It was a big gain for the few at the top. And it's interesting, because I think if you look at the kind of arc of this development, on the other hand, creating those stratified societies is what gave us agriculture, and then technology, and literacy. These are the things that allowed us to eventually invent technologies that raise the standard of living for everybody and create modern science. Whoever was in charge of Göbekli Tepe at the pinnacle of that society would love to live like the average resident of Germany. So, it eventually improved everyone's lives. But we had to go through this period where things were bad for most people most of the time. Large-scale cooperation involves people subverting their own interests to the group interest, and that's often bad for a lot of individuals.

P. Verschure But the irony is that these achievements that you were talking about, I forgot to mention Facebook and TikTok, are actually occurring at a time where societies become, again, more secular. On this whole point, the whole period that was dominated by religion, that was a time that life sucked for most people.

Ted Slingerland Things started to get better in the Renaissance—quality of life. The Romans, what have the Romans done for us? Aqueducts: you know the famous Monty Python bit about that. The Romans did a lot of great things. They built roads; they improved sanitation; they brought water. There were improvements, gradual. But you're right that what really seemed to accelerate this was the creation of the scientific worldview, which required suppressing, or at least bracketing religious beliefs, or putting them to the side when thinking about the world. There is something ironic there that these religions helped large-scale societies get off the ground, but then they seem to be the most successful when they can figure out a way to then build institutions that take over a lot of the work that religion used to do and bracket most religious beliefs. I'm a person who believes that pseudo-religious beliefs kick around in all of us. I'm an atheist, but I think that I'm committed to certain norms that I don't really have empirical evidence for. I just believe in them deeply, like human rights and human dignity. But if it's a type of religion, it's really stripped-down religion. And that seems to have done really well.

P. Verschure But then the transition you describe is a transition from living in a world filled with magic, to living in a world where there's no more magic.

Ted Slingerland That seems to be one of the transitions that allowed science to happen: suppressing a lot of intuitive things. Science is counterintuitive. What intuitive thinking is, is that if we want it to rain, we pray to the god of rain. That is plugging into our basic social reasoning. It makes complete sense to most people. It's what most people around the world do when they need rain. They pray to a god to get rain. Realizing that the world is not intentional in trying to figure out the principles and mechanical principles that are really driving it is counterintuitive and that was a cognitive achievement that happened gradually in northern Europe in a certain period of time. Why that happened, obviously, is an entire cottage industry.

P. Verschure But then in some sense, given your analysis, you would say that this whole belief in a nation-state with its roots in the Enlightenment is still sharing certain aspects that we find in these religions, because there's also this ideal of this higher entity which is now your nation and your national identity. It's like praying to the Crocodile God, right? Because look at my passport, we are actually brothers. What kind of carryover do you see there to the belief in national identity, and nationalism, and a nation-state?

Ted Slingerland A lot, obviously. The nation-state borrows stuff that works. The synchronized rituals. We have big parades where we march; we have symbols that we wave; we have pledges of allegiance that we make, perhaps. But I don't think it's that neat of a division because the modern nation-

states that arose tended to see themselves in a religious world view. God: America was certainly based on the idea that God gave this land to us because we're destined to be great. And it's still, in America, a very common view. They're not easily untangled and they use a lot of the same tools. There's a very good reason why religion and politics tend to be mixed together in most places in the world. Europe and Canada are probably real outliers in this regard. The United States looks a lot more like the rest of the world.

P. Verschure So how would alcohol improve that?

Ted Slingerland How would alcohol improve that? The basic argument in my book *Drunk* is that alcohol is serving a lot of the same functions that religion is in terms of enhancing trust and cooperation. When you sit down with someone and drink a few beers, it's similar to when you sit down and shake hands. You're showing you don't have a weapon when you shake hands. When you drink a few beers, you're taking your prefrontal cortex out and putting it on the table and saying, you know, I've given up cognitive control. It's a tool for enhancing trust between individuals. That's very important. It also helped the transition. Hunter-gatherers were probably motivated to settle down by the appeal of intoxication. So, we have beer, come join our Crocodile God group. Once they made that transition and suddenly their quality of life plummeted, alcohol probably helped them deal with that quality-of-life decline. It helps with stress; it helps with mood. There are people laboring on the Crocodile God Temple all day long who probably at the end of the day went home and drank beer and it made them feel better, the same way we have a drink at the end of the day. It helps with stress reduction and helps with mood. It helps with creativity in the ways we've laid out. People get together, they drink a little bit and they come up with better ideas. They're less self-conscious about sharing, whereas if they were sober, they would think it's a stupid idea. They may be willing to say something because they're disinhibited. It helps humans get along in these weird large-scale societies that we've created. It was, in a way, both the motivation, the original motivation, for creating them, but then once we get into them, it becomes a tool for helping us to cope. It's difficult living in large-scale societies. It also helps these societies to function in better ways. And that's the how alcohol's paying for itself. Essentially, it's paying for the cost.

J. Lupp Does it follow that a lack of alcohol leads to a breakdown in societal cooperation or collaboration?

Ted Slingerland That's what I would predict. It's hard to do this on a large scale experimentally. What you can do is take advantage of natural experiments. In the book I report on this one study, which I think is still unpublished, by an economist who looked at a natural experiment: the imposition of prohibition in America. We tend to think of that as something that happened all at once, at the federal level. But that's not the case. It was imposed over a very long period of time at the county level. He took advantage of that variation and looked at counties that were previously "wet" where alcohol was legal, and then had prohibition imposed. And then as a proxy of collaboration, he used patent applications. He had county-level data on patent applications made in a given year. What he found was when prohibition gets imposed, patent applications go down 15 percent and take about three years to get back to previous levels. He is arguing that prohibition didn't mean people stopped drinking entirely. They had homemade alcohol at home or bootleg liquor. But what it did was to shut down the saloons and so it stopped group drinking. It stopped social drinking from happening. And he thinks that's what's going on. You see this drop in innovation when people can't gather in saloons and chat anymore. And he thinks what's happening three years later is speakeasies are arising, people are creating workarounds and coming up with new ways, underground ways, to socialize and drink. So it's correlational, but it's kind of a neat bit of correlational evidence. I talk a little bit in the book about COVID and annual conferences getting canceled. What do people do at annual

conferences? They go to talks; they give talks; they drink. The main motivation is to go and see your friends and colleagues, and meet people you've heard of and want to talk to, and you meet over drinks. That didn't happen for a year and a half. It's still not happening very much. I would predict that we're going to see a drop in creativity and collaboration. And you could pick a proxy to measure that. There was one I did dig up. It's in a footnote because I stumbled on this study late in the process of writing the book. It is, again, a natural experiment. A political science annual conference got canceled because of a hurricane. So this one year, the annual conference didn't happen, and the scholars found that in the wake of that cancelled annual conference the percentage of papers that were co-authored went down significantly. You seem to have a fall in collaboration. I'm going to predict that COVID does a similar thing. We're not getting together in person and meeting over drinks anymore. We're having these weird Zoom meetings where we're not drinking together, where we have very reduced bandwidth in terms of facial expression and tone of voice. The timing's a little bit off and timing is crucial. The social signals that we use to coordinate when it's time for me to stop talking and when it's time for you to start talking are fractions of a second and Zoom screws that up. We are lacking all the dynamics of in-person meetings. And I think that we're going to see a serious effect on innovation and collaboration.

P. Verschure There have also been other proposals on how mushrooms and the consumption of mushrooms, hallucinogenic plants and mushrooms, also led to the creation of religion. Is there is a hallucinogenic component that would contribute to that? Well, in your case, you would say, well, it's more. It is the suppression of cognitive control that that leads to, if you want, more magical thinking and then the creation of religious considerations. How do you see that link to other drugs, including, let's say, mushrooms and these mushroom theories on the evolution of religion?

Ted Slingerland Hallucinations are the result of the suppression of cognitive control. What happens during trips—mushroom trips, LSD trips—is the playground monitor is gone now and different parts of the brain can talk to each other that don't normally talk to one another. You get these weird kinds of synesthesia where you're getting sensory modes overlapping in weird ways. Michael Pollan's got a relatively recent book about this, *How to Change Your Mind*, and he's arguing that hallucinogens have played this important role. I do look at hallucinogens; the book is about chemical intoxicants in general. I look at hallucinogens, I look at Kava. I don't look at caffeine or nicotine because those are not intoxicants. Caffeine and nicotine are friends of the prefrontal cortex. They enhance your cognitive control and I'm not interested in them. I'm interested in things that mess with your PFC essentially and hallucinogens do that, cannabis does that. My argument in the book, though, is that the reason I focus primarily on alcohol is because alcohol is the king of intoxicants. It's by far the most commonly used chemical intoxicant. And it's a better drug in a certain way. It's not an accident that it's the king of intoxicants. I think if you gave a group of cultural evolutionary engineers some design specs. and you said: "We need something. We want a chemical substance that will suppress PFC, but not for too long and not too much. We want it to be short acting because we want people to be able to do this for a few hours, but then get back to everyday life again. We want it to be easy to make; you should be able to make it anywhere; you should be able to dose it well." It would be something like alcohol. Cannabis, for instance, is very difficult to dose whether you're smoking or eating it. Cannabis has very variable effects across individuals. It has almost opposite effects in different individuals, whereas alcohol's effects are pretty consistent across individuals. It's easy to dose. Hallucinogens so powerfully disassociate you from reality that they're not useful for most of the things we use alcohol for. You're not going to sit down with business partners to negotiate a contract and all drop acid together, or it's going to end up being a very interesting contract. And they are too long acting. I mean, they take too long. I

am open to the fact that the idea that in the modern world we may be able to adapt some of these drugs to be more user-friendly. And I talk a little bit about microdosing. Now that we can synthesize the active component of, let's say, Psilocybin mushrooms, we may be able to take smaller doses that would give us some of the alcohol-like benefits. We'd still be able to sit down and talk to colleagues. We'd still be able to go to work, but we'd have some of these benefits without the cost. Because the problem with alcohol—the two big strikes against it—is that it's really dangerous physiologically. It's really damaging physiologically and it's super addictive. It's physiologically addictive on the level of cocaine and heroin. Whereas cannabis and psychedelics are pretty harmless physiologically and don't seem to create physiological addiction.

- P. Verschure Chronic use of cannabis can lead to rather important shifts in how the cerebellum and prefrontal cortex interact. Suppression of your cortex. But OK, it's not comparable.
- Ted Slingerland Compared to alcohol it's a safer drug. You can be psychologically addicted to cannabis, but it doesn't create physical addiction in the way that alcohol does.
- P. Verschure But it's interesting also, this distinction. Alcohol as sort of the perfect drug in a sense, versus hallucinogens. In the ritual sense, this is often delegated to an elected few. They will get the trip and then report back to the rest of the community what the gods told them.
- Ted Slingerland Yes, that's interesting. I talk about that. Typically, because hallucinations are so powerful, cultures have two different strategies for dealing with it. One is the one you said. So, there's a class of people, shamans, and their job is to trip a lot, but that's their full-time job. They don't have to farm; they don't have to do anything else. And then they come back and tell us what the gods said, which is basically the parts of their brain that don't normally get to talk to the conscious part of the brain suggesting solutions. So why are the gods angry with us? We haven't been capturing game. The shaman takes a bunch of mushrooms and goes up the mountain, has a trip and speaks to the gods and maybe comes up with.... Michael Pollan has a great analogy. He argues that hallucinogens are to cultural evolution what mutagens are for genetic evolution. For genetic evolution, you need variation, you need mutations. They're mostly really bad. They mostly have negative consequences. But every once in a while, one is good and that's the raw material for selection to act on. He thinks for cultural evolution you need variation, you need kind of entropy, you need the brain scrambled up a bit. And most of what that's going to produce is nonsense. Most of what you come out of a trip with is nonsense. But maybe every once in a while, you come up with something that's really new because it never would have happened if these brain regions weren't talking to one another, and it's useful. And so the shamans provide that. Or, the other strategy is that all the members of a group use hallucinogens, but they only do it once or twice a year and it's a very special ritual, but it's never an everyday drug for everybody.
- P. Verschure To get us to the finish line, two questions: Do you believe humans will ever manage to establish sustainable collaboration?
- Ted Slingerland Like all of us on the planet, together? No, I'm pessimistic about that.
- P. Verschure Let's be pragmatic about it. We face these global challenges now; we need a global response. So as a consequence, we need global collaboration. Are we going to manage to do that?
- Ted Slingerland The problem with the global challenges we face is they're happening at a time scale and on a causal scale that I don't think we're evolved to really get. So, climate change is the causality. However, the link between me driving to work and the storm that happened that wiped out Louisiana is so diffuse. We're not good at thinking about that. We need to figure out some way to make something like climate change feel real to people, much like we would have done in

the past if an army threatened to invade our territory. How did we know that the threat was real? Because we looked over the wall and saw the actual army.

People are not rational. You've got to get their guts on board. I guess if we could figure out a way to make some of these existential global threats cognitively graspable, emotionally graspable by people, maybe you'd be able to get collaboration and cooperation in the face of common enemies. And obviously, climate change is a common enemy we all have; we're all going to be affected by it. But I just don't think we've been very successful in getting people to feel that. Think about COVID response and just the political divisions in the United States, for instance, or even here in Canada on just a no-brainer thing like vaccines. I mean, you can have reasonable disagreement on whether or not kids should go to school or whether or not math should be required in the classroom. But vaccines are just—there's no rational debate about that. But there is debate about it because it's been tribalized. Getting people together in religious groups, large-scale societies, is in a way fighting against our tribal nature; it's creating a supertribe or it's suppressing tribal instincts. But they're always there, and I think what we've seen is they come back.

- P. Verschure But if I listen to your analysis, the consequence will be that we could set up a new religion where it's more like a Gaia-oriented religion that has to protect Mother Earth. And Mother Earth is our new God, and we have to venerate her by making sure that she doesn't get further compromised. Wouldn't that be a way through this? We start to mobilize against all these very primitive responses of collaboration in order to actually achieve this goal because the rational route is closed?
- Ted Slingerland How do you practically do that, though? You need a Jesus, right? You need one, or a series, or a group of charismatic leaders who can convince...
- P. Verschure And a lot of beer.
- Ted Slingerland And a lot of beer, or organic beer, sustainably. Something like that is in theory great, it's just the practicalities of how you get it off the ground, because people need to believe it. They need to believe it and that's the tricky thing.
- P. Verschure Well, that sounds like you could argue that that these movements that try to instill ecological change have in some senses already these kinds of metaphysical considerations in them. You could build on that.
- Ted Slingerland That's where I hope the database of religious history is going to prove helpful, because once we get enough data, if we can see that there are these common features of religions that are successful, you can imagine then consciously engineering a type of new religion that actually has some of these features.
- P. Verschure You have ten years. We've got to hurry up. My last question: If you could change one thing in humans, you're the Über-God, and you can change one feature, one trait of humans, what would it be so that they would collaborate more effectively?
- Ted Slingerland It's tricky because anything you change could have these knock-on effects that you can't predict. I'd like to change human selfishness, you know, self-regarding. But if you change that, would you screw with parenting, would you screw with friendship? I don't know.
- P. Verschure Now you would also screw with agency.
- Ted Slingerland I can't answer that question. I'm not an Über-God.
- P. Verschure I would have said that there's a self-limiting alcohol absorption system that brings everybody to the sweet spot of what was it?

Text Summary: Interview with Edward Slingerland (September 9, 2021)

Ted Slingerland 0.08

P. Verschure 0.08 homeostat in the brain.

Ted Slingerland If we had a way to turn that on really easily...one thing I'd change is to not give us the tendency to be physiologically addicted to alcohol. What would be nice is a drug that does everything alcohol does but is not physiologically harmful or addictive. That would be nice. Maybe micro-doses of psilocybin are going to do that. But it's early...we only have about eight years of experience with that and we've got about twelve thousand years of experience with alcohol.

P. Verschure Great. Edward Slingerland, thank you very much for this conversation.

J. Lupp Thanks Ted, thank you very much.

Ted Slingerland Yeah. Thanks for having me.