INTERVIEW

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Science and Social Change: A Conversation with Robert Sapolsky

Dr. Robert Sapolsky is John A. and Cynthia Fry Gunn Professor of Biological Sciences at Stanford University, Professor of Neurology and Neurosurgery in Stanford's School of Medicine, and a research associate at the Institute of Primate Research of the National Museums of Kenya. Sapolsky is a recipient of a MacArthur genius fellowship and the author of several truly important books, including *Stress, the Aging Brain and the Mechanisms of Neuron Death* (1992); *Why Zebras Don't Get Ulcers: A Guide to Stress-Related Diseases and Coping* (1995), a finalist for the Los Angeles Times Book Award, *The Trouble with Testosterone* (1997); *A Primate's Memoir: A Neuroscientist's Unconventional Life Among the Baboons* (2002); *Monkeyluv: And Other Essays on Our Lives as Animals* (2005); and *Behave: The Biology of Humans at Our Best and Worst*, one of the *Washington Post*'s Ten Best Books of 2017. An advocate of science in and for the general public, he regularly publishes essays in *Discover, Science, Scientific American, Harper's*, and *The New Yorker.*

Sapolsky's best-selling account of his life's work, *A Primate's Memoir*, chronicles the changing personalities and social structures of a troop of baboons over two decades and its near-destruction by environmental poisoning; many of the males contracted bovine tuberculosis from infected meat and organs (scraps left in the garbage dump of a nearby tourist lodge). The most interesting finding of Sapolsky's primatological research, however, follows the events described in this book.

Among primates, baboons are famously aggressive; as Sapolsky puts it, "they're no one's favorite species" (299). Sapolsky began studying the biology of stress through baboons because their societies, like

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the human society Sapolsky comes from (he is based in the American academy), are hierarchical and aggressive: "Basically, baboons [in the Serengeti] have about a half a dozen solid hours of sunlight a day to devote to being rotten to each other. Just like our society .... We live well enough to have the luxury to get ourselves sick with purely social, psychological stress" (15). But in the years following the TB epidemic, which killed the most aggressive males, the culture of the troop changed radically. In the 2008 National Geographic documentary *Killer Stress*, Sapolsky states that before the TB deaths, this troop was "your basic old baboon troop at the time, which means males were aggressive and society was highly stratified." Following the deaths, however,

> what you were left with was twice as many females as males, and the males who were remaining were, you know, just to use scientific jargon, they were good guys. They were not aggressive jerks. They were nice to the females. They were socially-affiliated. It completely transformed the atmosphere of the troop. And when new adolescent males joined the troop, they'd come in just as jerky as any adolescent males elsewhere on this planet, and it would take them about six months to learn we're not like that in this troop. We don't do stuff like that. We're not that aggressive. We spend more time grooming each other. Males are calmer with each other. You do not dump on a female if you are in a bad mood. And it takes these new guys about six months and they assimilate this style [of social life] and you have baboon culture. And this particular troop has a culture of very low levels of aggression and very high levels of social affiliation. And they're doing that 20 years later. (*Killer Stress*)

This is, for me, one of the most significant and the most hopeful scientific discoveries of the century. It suggests, as Saplosky puts it in the documentary, "if they [these baboons] are able to in one generation transform what are supposed to be textbook social systems, sort of engraved in stone, we don't have an excuse when we say there are certain inevitabilities about human social systems."

His most recent book, the epic 800+ page-turner *Behave*, is no less than a "magisterial account of human behavior."[1] As the review in the *Guardian* from which this laurel hails also points out in bold type, *Behave* argues that humans (and, presumably, animals in general) do not have free will. This account of the origins of human behavior, from the micro-increments of the neuronal mechanisms of individual

cognition to large scale social formations and cultural institutions, is an amazing synthesis of many disciplines and interdisciplinary areas of inquiry. *Behave* translates the findings of countless observations and experiments in a range of fields to create a clear, cogent picture of our current scientific understanding of human behavior for the general public and make a compelling argument for the broad ethical implications of this work. It is interesting that a book which painstakingly demonstrates the biological and cultural mechanisms that precede, permeate, and even masquerade as individual human agency has such high and genuine hopes for our ability to "listen to reason": *Behave* is, as much as anything else, a manifesto for desperately needed social change. But, as the *Guardian* has it, "It remains debatable whether strict determinism is compatible with Sapolsky's final message of hope for humanity."

I spoke with Sapolsky in May 2018. Long an admirer of his work, I was thrilled to find him equally wonderful in conversation.

HF: You have been hailed, by many, as one of the very best scientific writers of the day. You're a very busy Stanford professor. What is the impulse behind writing for general readers?

RS: Everybody out there is a de facto behavior biologist—that's the case every time we serve on a jury, judge the morality of someone's actions, figure out how to deal with a troubled and troubling family member—and so they might as well become an informed one! There are real consequences of people being informed or uninformed about science. And we scientists should, in principle, be immensely excited about the stuff we think about; the chance to get other people excited too is irresistible.

HF: So, writing is partly an extension of pedagogy?

RS: I think certainly teaching is part of it, but I also very much like writing. But I'm not a writer. Growing up, I was more of a musician. But conducting fieldwork in Africa, given the stretches of time in the isolation, you become very, very dependent on mail from people. You start writing to lots of people to get letters back. Sitting out there for long stretches, and writing to a lot of people, I discovered that writing was something I really enjoyed.

HF: Writing an enormous book like *Behave* (as opposed to *A Primates Memoir*, which is also wonderful; I teach it often and students love it) must be an incredible challenge.

RS: You know, I had many bad moments in the shower. I spent a lot of time during the writing of the book thinking: I'm not going to be able to do this. To give you a sense of what I got myself into: I'd been collecting notes for this book since I was in college.

When I finally sat down to do it, for each chapter I averaged a couple of thousands of pages of notes that I accumulated from reading over the years. And so, I closed my research lab and stopped research altogether 5 years ago to write this book. This was a big decision and a big transition for me. This was the first time I thought of writing as anything other than a hobby for the evening or commuting on the train. It's also the first time I wrote a book for a deadline, which created all sorts of anxieties I had never experienced before as a writer.

So, yes, this one just seemed very daunting. I wanted to get this book *really right* and so this was the first book during which I had sustained writer's block. I would pace around thinking: I'm not going to be able to do this, and I've bitten off more than I can chew.

HF: Among other things, *Behave* demonstrates the constellation of flawed assumptions about consciousness and culpability made by the American criminal justice system. How we judicate and punish people is a political matter (as is everything that's related to crime: the distribution of resources, and systems of health care and education). How can science meaningfully intervene in these as political matters?

RS: I'm certainly spending a lot of time thinking about this. I've been working with public defenders on a whole bunch of murder trials in which brain damage or childhood adversity [figure prominently]. To my mind, these are poster-child cases for volition as a suspect concept.

It has been beyond interesting, to see the justice system up close and to try to get people to think differently about issues of [culpability]. How science is supposed to get people to think differently about virtually everything, about our very behavior, I haven't a clue. At the moment I'm in the middle of reading this ghastly book, *The Falling Sickness: A History of Epilepsy From the Greeks to the Beginnings of Modern Neurology*; it's a grisly history of epilepsy that a historian of science wrote in the 1940s. He spends a ridiculous amount of time discussing different Greek physicians and what herbs they used to treat seizures. The book tries to make sense of how people made that jump, somewhere in the last 500 years, of thinking about epilepsy as something other than demonic possession. I use that example in my lectures endlessly. If there's any room for optimism, epilepsy is the example of it because it used to be considered demonic possession; the medical intervention was absolutely clear: you burn the people at the stake. Somewhere along the way, people formulated the concept of disease [and applied it to this disorder]. [And poof!] It's not sleeping with Satan that screws

up an epileptic's potassium channels; yahoo peasants with pitchforks don't show up for a ceremonial burning of an epileptic's driver's license.

And society hasn't fallen apart. This example is, in some ways, a model for what we're going to have to do. Childhood adversity produces a terribly weak frontal cortex, which is why some individuals make horrible, damaging choices and have done terrible things to innocent people around them. Yes, people ought to be safe from them, but [we don't need to torture them.] I'm a little bit optimistic that we can [make this cultural change], though I feel pessimistic that it has taken about 500 years for us to get this far, and that shift has predominately been in the West. Back in Kenya, for example, if somebody's got epilepsy, the odds are it will not be interpreted as a problem with his potassium channels.

HF: Science, it seems to me, is in the best sense always political; it has real implications for how we live, how we make ethical decisions, and who we consider worthy of ethical consideration. *Behave* demonstrates how interconnected biology and culture and environment are and, for this reason, why we need to be very skeptical of any reductive theory, solution, or worldview.

RS: Yes, and if all that anybody gets from a book like this is: it's all very complicated, so be really cautious before you decide you understand why people behave as they do, especially if these are behaviors that you judge harshly.

HF: *The Trouble with Testosterone*, *A Primate's Memoir*, and *Monkeyluv* are funny, touching books; they speak with such a clear, compelling voice. Where does this literary voice come from? What are your favorite genres, your favorite writers?

RS: I read tons of science fiction. I went through the obligatory stage of being able to quote long passages of anything written by Joseph Heller, Tom Wolf, and Kurt Vonnegut. And science writers, like Lewis Thomas and David Quammen. Of course, H.G. Wells, Philip K. Dick, and Ursula LeGuin I adore.

HF: You also have an interest in art; you mention Goya in one essay, Mahler in another. As you've written, we don't need neuroscience to confirm the validity of people's feelings or, in this case, the value of art. I am, though, curious about the effect of art, of the ambiguity of art, on ethical reasoning. Might ambiguity lead to, for lack of a better phrase, prefrontal cortex "overload" and fewer prosocial choices, given that cognitive processes act as a gatekeeper of the intuitionist roots of morality (*Behave* 482–83)? I am thinking, in part, of experiments you discuss that demonstrate the conservative dislike of ambiguity (*Behave* 450–55).

RS: There was a wonderful study[2] (as far as I can tell probably the only time somebody at the New School for Social Research published in *Science*) that demonstrated that when people read literature (art) as opposed to popular fiction (I'm forgetting exactly how they defined the two, but literature involved much more ambiguity than popular fiction) they get much better at theory of mind tasks. Reading literature increases your ability to understand what's going on in somebody else's head. The punchline of their paper was this: you become more cognitively complex (your social brain abilities) reading ambiguous fiction than unambiguous fiction. That makes perfect sense, and it makes perfect sense in the context of the political divide between progressives and conservatives. Literature not only [teaches the basic lesson that] different people think differently, it teaches us that [people and the world are] complicated. The pieces don't always fit together completely or clearly. It's also training in holding your breath, pausing before deciding you understand what's going on.

And, importantly, [exposure to literature can] take the anxiety out of trying to process ambiguity. A key difference between social conservatives and progressives is that ambiguity is not just confusing to conservatives, it's frightening, anxiety provoking. For them, a world that's not very clear and familiar, isn't exciting; it's scary. This fundamental difference is a major cognitive divide: is novelty exciting or scary? Being trained to experience and understand ambiguity is fantastic. Of course, trying to figure out what the hell some poet is saying isn't as menacing as all of society changing in ways that you can't understand. For some, ambiguity [means a] lack of control, a lack of predictability … [all the way to the feeling that] society's coming apart and people like me are becoming irrelevant.

HF: Yes, I think we find a good deal of evidence of this in the political life of the US, where rates of meaningful literacy are relatively low. Speaking of the desire for clarity (if not simplicity), I want to ask you a bit about physics envy among the behavioral biologists, the way some covet the kind of answers revealed by molecular biology or physics. Do biologists become overwhelmed by the staggering complexity of their subject?

RS: Oh, I think it's a major occupational hazard. Almost every branch of biology is filled with people who, at some point or other think, *if only I could get more molecular in my approach to X* … Not only would they be much more impressive and flashy, but they'd get down to "fundamentals." And, well, it doesn't work that way. More reductive scientific approaches don't give clearer answers

than more integrated ones; to the extent that they give clear answers, they give clear answers about the gears of a clock. Sometimes the gears are incredibly important, but very little that's most interesting about large biological systems revolve around gears.

HF: That's a great answer. *Behave* reminds me of another sweeping book, E.O. Wilson's *Consilience: The Unity of Knowledge* (1998). *Behave* not only embraces the complexity of the subject, but the seeming "ephemera" of the correlation and contingency of biology and environment. Given how poorly many people responded to sociobiology in the 1970s, how do we help academics and the public to see culture as biological and biology as cultural without being reductive of either end?

RS: It's hugely difficult. When I was in graduate school, this incredibly famous pharmacological biochemist (who played a central role in the development of all the leading antihypertensive medicines of the last 50 years) gave a talk at his 80th birthday. After many people had given talks about his important contributions, how many umpteen lives had been saved by his work, by thousands of millions of people taking his medications each year, he got up and gave the most amazing talk. He said, "Well, I've recently decided that I've pretty much wasted the last 40 years of my career. Coming up with newer antihypertensives helps save lives, but what I should have been spending this last half-century figuring out is why people stop taking their medications earlier than they should." I thought, oh my God. He said that roughly 90% of people who take antihypertensives, which they ought to take for the rest of their lives, stop taking them at prescribed rate within 6 months.

That's a great example of how tough it is to get many scientists to [think less reductively or think about culture]. When I give my stress talks these days I always ask the audience the same question: "Answer the following question and you'll do more good for human health than anyone since Jonas Salk: why is it that when we feel like nobody loves us we eat M&M's? Get the answer to that and you'll have cured half the cases of adult-onset diabetes in this country." And people think: Whoa! That's the level at which we should be intervening? It is incredibly difficult to get people to think differently because reductive models are very intellectually satisfying to people who think logically, and because reductive models are a hell of a lot better at solving medical problems than sacrificing goat innards to the gods. Reductive models have done wonders with pathogens in the water that make you sick and vaccines, for

example. But the really big biological problems we face these days have very little to do with reductive biology.

HF: Another great answer, and one which demonstrates that the task of facing and thinking through ambiguity and complexity may be as difficult for some scientists as for the general public, albeit for different reasons. Here is another complex, cultural question: Western culture is founded on a belief of human superiority, often cast as a transcendence of nature. Does primatology, as a field, still contain an unexamined speciesism, a sense of humans as ultimately superior to rather than on a continuum with other primates?

RS: I think truly good primatologists, and there's a lot of them out there by now, absolutely think in terms of a continuum. They spend a whole lot more time thinking about similarities than differences, or if they think about differences, they think about what are the rules that have given rise to those differences. We all are subject to similar selective mechanisms when it comes to the evolution of behavior; that's why we're different from marmoset monkeys. If anything, the really hairy, hard core field biologists usually prefer their species to humans.

HF: Primatologist Frans de Waal argues that if anthropomorphism is risky, "its opposite carries a risk too. To give it a name, I propose *anthropodenial* for the a priori rejection of shared characteristics between humans and animals when in fact they may exist" (de Waal 68–69).[3] I've noticed a tension in your work between an orthodox notion of scientific objectivity and all that it implies about rejecting anthropomorphism, and something more contingent, what de Waal calls "animalcentric anthropomorphism."

RS: Yeah, and I think that reflects the fields I've straddled intellectually and emotionally. You know, lab scientists do awful, awful things to rodents. That's part of the research I've done, and it is very reductive work. But in fieldwork, I'm thinking about the endocrine regulation of social behavior and, say, somatostatin in a naturalistic setting while, *at the same time*, loving the animals I study. Straddling between the lab and the field each year means I spend part of the year killing animals and part of the year in a position in which I am far more likely to be killed by them.

Conservation issues come in the back door, too; at times people actually want me to mow down my animals! It is a life that's not very amenable to clean categories in one's head. My lab self and my field-primatology self are very confused; what you do as a lab scientist is distance yourself as much as possible from the blood and gore that you've signed up for,

which is a world away from your fieldwork. I think the strain of this, of parts that do not fit together well, shows.

HF: You mention the emerging study of personality in primatology in *Behave*. How might this new work change the way we think about other animals, about nonhuman agency? Individuality is so very important to humans; I assume we cognitively exaggerate our own individuality and downplay the individuality of others, particularly other animals.

RS: Was it George Bernard Shaw who said, "Love is the process of exaggerating the differences between one person and everyone else in the world"? Often, science is built around exaggerating the differences between humans and every other animal in the world. But in contrast to that view, personality is one of those things that's on a continuum among species (although I'll admit that it took me a while to come around to the papers on fish personality; I realized I needed to overcome my primate chauvinism). We obviously revel in the notion of our own individuality, but even that comes with a footnote (which is that the notion differs in individualist cultures versus collectivist ones). We are on a continuum with animals, as well, in terms of individual differences.

HF: In *The Ape and the Sushi Master*, de Waal wrote, "There is so much resistance to the idea of animal culture that one cannot escape the impression that it is an idea whose time has come." I was thinking about the huge cultural change in your Keekorok Troop, from typically aggressive to more socially affiliative. It seems like all of *Behave* leads to this revelation: if these baboons can change their culture, we can change ours too. Would you like to say more about this? And has the troop maintained this new culture?

RS: Yes, if these baboons can change their culture, we can too. If the world has unexpectedly gotten so much better in recent centuries, we can demand that more of the same will happen in the future. If someone like Hugh Thompson (see below) can emerge from out of nowhere and act with stunning, brain morality, so can we. And the more we understand the science that explains how these occur, the more we can facilitate these happening again.

In terms of the Keekorok Troop—wonderfully, they maintained the culture for many years, something I dearly rooted for in a way that is scientifically unseemly (so much for objectivity. . .). The troop, unfortunately, no longer really exists. I don't really want to go into details, but the theme is one familiar to many field biologists—your study subjects don't do well living in close proximity to humans.

HF: And what do you think about what primatologist William McGrew calls the "c-word," using the word "culture" to describe nonhuman social learning?

RS: It's totally valid. You can of course, by definition, make it a concept that is exclusive to humans. But if you define it in a more operational way—it's a non-genetic transmission of styles of behavior, intergenerationally or intragenerationally, and it's not just a direct outcome of ecological differences. Once dealing with that definition, we see we're not the only ones with culture. Admittedly, though, our versions are orders of magnitude more interesting.

HF: More interesting to us . . .

RS: That's true. Probably your average Joe primate might be really into termites, but not that interested in human theological differences. De Waal's entire career, I think, could come down to the phrase: it's on a continuum.

HF: Yes, but these are four very important words! Okay, free will at last: you argue the complex interplay of biology and natural–cultural environment is deterministic *without being inevitable*, a fine and interesting distinction (perhaps the most important one of *Behave*). People are uncomfortable jettisoning the idea of free will; you yourself have said that you must live *as if it is real* (VOX interview with Sean Illing). I think the problem here lies in the false binary of freedom and determinism: I would argue the more we learn about ourselves and the world the more we see that nothing is free and equally nothing is determined. I would like to propose another way to think about this problem: rather than affirming or refuting a notion of "free" will, what about replacing this with an idea of learned will? It represents the complexity of nature and culture without emphasizing freedom or determinism.

RS: It's perfect! [I feel sometimes like all I do is address the issue of] free will, trying to teach people what science demonstrates in that regard. But, if there's no free will, if we're in a deterministic universe, people ask me, "Why are you going on about the need for change, if everything is already determined?" Put this way, it seems contradictory, but it's not. I've been spending a lot of time thinking about how to argue this point clearly.

I think the emphasis on learning is absolutely perfect. Towards the end of *Behave*, I discuss the incredibly inspiring story of Hugh Thompson, the American soldier who at tremendous personal risk acted to stop the My Lai massacre. It is dazzling to read what he did, and then how awful the rest of his life was because of that. Most of us have a strong propensity towards some version of

learned helplessness when it comes to changing the world. We learn the bad guys win; the odds are stacked against you; you can't fight city hall. By around age 25, most of us have learned this passivity [if not] cynicism about the world. There is a way to think of this neurobiologically, in terms of dopamine and the frontal cortex; this learning has produced a [cognitive] reality in which someone stepping forward and trying to make a massive, brave change about something or other in a moment of crisis is highly unlikely. Or, put it this way: a frontal cortex that can't pull off a big change because it has been trained to be helpless.

And then you hear the story of someone like Thompson, and feel "inspired." On a neurobiological level, inspiration means there's now maybe three and a half frontal neurons that are a little bit more perky in the face of the otherwise [ingrained response of] "Oh my God, this is too big a problem, nobody can make a difference," or "somebody else will take care of it," or "I'm tired," or "I'm scared," or "I'm just going to look the other way and pretend this didn't happen." Now there are three more neurons, three fingers on the other side of the scale, ever so slightly tilting you in the direction of actually doing something brave the next time. You have been inspired by the example of another person and, as a result, you may act differently. That's a scenario of change that does not require the idea of free will. It's exactly what you said; it's a type of learning that triggers another type of learning.

But when we get demoralized, when the NRA wins [another victory over common sense and the common good], something vaguely resembling the opposite happens. In other words, our experience of the world leaves a biological trace in our brains that makes certain future social behaviors more or less likely. Inspiration is the phenomenon of overcoming our learned helplessness about big difficult things in the world.

HF: That's wonderful. Well, it only makes sense. If the effects of trauma are real (and we know they are), then something like its opposite must also be real.

RS: Yes, even on a low level, like if you're driving and you see somebody in front of you with one of those "Mean People Suck' bumper stickers. . .

HF: Yes, a visceral moment of optimism.

RS: 30 seconds later you might slow down to let somebody else in to change lanes. That's biology [in action], not free will.

HF: Of course, all of this depends on the driver's general disposition, upbringing, culture. . .

RS: It does, which is why it would work with only a subset of people. [Take *Behave*.] If somebody's reading a book like that, she's probably had enough good, lucky things happen in her life that she's in the subset of people who are more predisposed to being inspired by something as unlikely as a book about science.

HF: So many scientists (and nonscientists too, theorists and scholars of the humanities) use machine-metaphors when speaking about the brain, particularly computer terminology, phrases such as "hard-wired." Should we be worried about the way this metaphor acts as a feedback loop? If computers are commodities, and metaphor shapes how we think about things, should we be concerned about the way these metaphors shape the way we approach particular problems in behavior or neuroscience?

RS: Yes absolutely. The metaphors we live by [matter]. It is amusing to look back on metaphors from earlier periods in science. All sorts of people in the 70's wrote useless, impenetrable theoretical papers on the brain as hologram, and years before on the brain as vacuum tubes. It's silly, and it's only recently that technologists have pulled in the opposite direction with computers as neural networks. But, yes, the machine metaphor is particularly scary these days because, sitting in the shadow of Silicon Valley, it's mighty hard not to see that technology dominating an awful lot of the world.

HF: In the past you've been somewhat positive about social media. Of course, the negative stuff about the internet is all too obvious, whether it's human trafficking facilitated by the dark web or billionaires pouring money into the Transhumanist agenda of becoming downloadable information, escaping their bodies into the "cloud."

RS: Yep, all those things. I suspect that the Bay Area with its tech moguls will, 33 years from now, be the world center of frozen dead people in very expensive vaults. The institutes funded by Silicon Valley gajillionaires that will be devoted to slowing, stopping, or reversing aging will be just dizzying. But among the most dangerous manifestation of the internet is, far and away, that as a teenager you can feel crappy about yourself because of a party you haven't been invited to on the other side of the planet, that the ways in which you feel inadequate are amplified. Social media seems a celebration of our tendency to compare our inner selves with the external selves that everyone else presents.

HF: That must create a lot of conformity, make people less likely to see things differently or take social risks.

RS: Yes. You do anything through social media and you will soon find out what hundreds of people think of what you did.

HF: You reference Steven Pinker's book on violence (*The Better Angels of our Nature*) several times in *Behave*; you point out some of the flaws of the book but ultimately seem to agree with his thesis that humans are less violent today. Granted, moral philosophy and science have made progress, and the average standard of living or quality of life has improved. However, one might argue humanity as a whole does not progress precisely because, despite such philosophical and scientific progress, systemic violence not only continues but grows. For example, in 2013 there were at least "27 million slaves worldwide, more than in 1860, when there were 25 million."[4] And in 2016, the estimate rose to "more than 40 million" slaves worldwide; these are slaves in the strictest sense of the word (not the much larger number of people for whom their economic circumstances make their consent notional).[5] Can we really say we've progressed given the kind of progress of which we're capable?

RS: I think if one really does take a long view, one sees things have become much better. What has changed is that we [here in the US] can be excruciatingly pained by what's happening [very far away,] say to Rohingya refugees in Burma. The amount of the world that one can feel pain for has increased. But as a counter to that, the amount of damage one damaged individual can do with an automatic weapon (verses a machete 500 years ago) has also increased. But no matter what we do, no matter how much progress we make in medical research, by definition there's always going to be a leading cause of death, and it's always going to scare the crap out of us. It's always going to take loved ones far sooner than we are prepared for; it is always going to be the stuff of nightmares. And then there's always going to be horrific, appalling, heartbreaking behavior. When it comes down to it, if we had a world in which only one child a year died of abuse instead of the insane numbers who do so now, we are set up as humans to feel that pain at least as much as we do now.

HF: The philosopher of science Rebecca Newberger Goldstein has said that science is very good at telling us what the world is like, even sometimes how it works, but it takes the humanities to address the question of what it means. What do you think of this?

RS: Absolutely. I think the best encapsulation of this is the recognition that it's silly to have doctors make life and death decisions or quality of life decisions. Doctors are there to tell you what the contingencies and possibilities are, [but not how to live or when to die]. The world of doctors deciding when to pull plugs [should come to an end.] It is not their job to decide when [someone else's] life is or

isn't worth living. If I were capable of actually understanding poetry [well], I would say that's where the poets come in.

HF: In *Behave* you discuss the importance of cultivating a certain kind of detachment, an empathy that is less immediate. You write, "the more individuals can regulate their adverse empathic emotions, the more likely they are to act prosocially" (169). How is this different from the detachment you are concerned about in "Beezlebub's SAT Scores," your essay on the Unabomber? You talk about the detached violence that characterizes our era, but you also warn against "empathy creep," a kind of "detached indiscriminateness" that might allow one to forgive too much (*Trouble* 109, 111). Can one forgive too much?

RS: That's a great question, and such a subtle one. "Detachment" is being used in two different senses here. In *Behave*, it concerns a key distinction between feeling empathy for someone else's pain and actually doing something about it—acting compassionately. The latter is by no means guaranteed by the former, and there's a danger, in our era of wildly lauding empathy, of deciding that it is a virtue in and of itself. So, when does feeling empathy actually lead to acting compassionately? The point is that feeling someone else's pain is painful, and if your empathy is sufficiently intense and visceral (typically in the form of, "what if this were to happen to me, this would be awful"), there's the possibility that the highest priority becomes getting rid of your pain, by looking the other way. If there is a degree of detachment (more akin to, "this must be so awful for them"), the odds of acting compassionately increases. Writ physiologically, the more your sympathetic nervous system kicks into hysterical high gear when contemplating someone else's pain, the more likely you are to have to turn away.

In the essay you refer to, there is a danger in a different type of detachment, having to do with a canard about the dangers of a purely biological perspective on behavior. It is this supposed inevitable march of going from "we can explain everything about behavior with biology," to "we must forgive everything about behavior because of that," to a detached, "and we certainly aren't justified in doing anything to constrain the damaging behaviors of the biologically damaged around us." First, if the first step is the case, the very concept of "forgiveness" becomes irrelevant (as does "blame"). But more importantly, just because there is (in my view) no "free" will and we have to remember that when considering the worst of human behaviors, that doesn't mean we mustn't act to protect people from those damaging behaviors. If a car's brakes have failed, blaming it or forgiving it for the

damage it might do is nonsensical, but you still have to make sure it is kept off the streets.

HF: That's a great answer; thank you for the interview.

NOTES

1. https://www.theguardian.com/books/2017/jun/09/behave-by-robert-sapolsky-review

2. Kidd, David Comer and Emanuele Castano. "Reading Literary Fiction Improves Theory of Mind." 342, 6156: 377–80.

3. Frans de Waal distinguishes between "animalcentric anthropomorphism" and "anthropocentric anthropomorphism:" "The first [makes every effort to take] the animal's perspective, the second takes ours" (77).

4. Quentin Hardy, "Global Slavery, by the numbers."

5. According to Mark Tutton, "Those are the findings of a new report produced by the International Labor Organization (ILO), a U.N. agency focusing on labor rights, and the Walk Free Foundation, an international NGO working to end modern slavery. The report estimates that last year, 25 million people were in forced labor – made to work under threat or coercion – and 15 million people were in forced marriage" (https://www.cnn.com/2017/09/19/world/global-slavery-estimates-ilo/index.html).

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