

## Viewpoint: Evolution denialism is back. This time it's coming from the left

**E**volutionary biology has always been controversial. Not controversial among biologists, but controversial among the general public. This is largely because Darwin's theory directly contradicted the supernatural accounts of human origins rooted in religious tradition and replaced them with fully natural ones. The philosopher Daniel Dennett has described evolution as a sort of "universal acid" that "eats through just about every traditional concept, and leaves in its wake a revolutionized world-view, with most of the old landmarks still recognizable, but transformed in fundamental ways." Fearing this corrosive idea, opposition in the US to evolution mainly came from Right-wing evangelical Christians who believed God created life in its present form, as described in Genesis.

In the 1990s and 2000s there were repeated attempts by evangelicals to ban evolution in public schools or teach the so-called "controversy" by including Intelligent Design—the belief that life is too complex to have evolved without the aid of some "Intelligent Designer" (i.e. God)—in the biology curriculum alongside evolution. But these attempts failed when scientists demonstrated in court that Intelligent Design was nothing more than Biblical Creationism gussied up in scientific-sounding prose. Since then, however, Creationism and Intelligent Design have lost a tremendous amount of momentum and influence. But while these right-wing anti-evolution movements withered to irrelevancy, a much more cryptic form of left-wing evolution denialism has been slowly growing.

At first, left-wing pushback to evolution appeared largely in response to the field of human evolutionary psychology. Since Darwin, scientists have successfully applied evolutionary principles to understand the behavior of animals, often with regard to sex differences. However, when scientists began applying their knowledge of the evolutionary underpinnings of animal behavior to humans, the advancing universal acid began to threaten beliefs held sacrosanct by the Left. The group that most fervently opposed, and still opposes, evolutionary explanations for behavioral sex differences in humans were/are social justice activists. Evolutionary explanations for human behavior challenge their *a priori* commitment to "Blank Slate" psychology—the belief that male and female brains in humans start out identical and that all behavior, sex-linked or otherwise, is entirely the result of differences in socialization.

This stance is maintained by the belief that evolutionary explanations for sex-linked behavioral differences are *biologically essentialist*, which is the fatalistic notion that biology alone directly determines our behavior. Blank Slate psychology, however, is universally rejected by experts, as the evidence for innate sex-linked personality differences in humans is overwhelmingly strong. But experts also universally reject that this view demands we embrace biological essentialism, because the environment *does* play a role, and observed sex differences are simply *averages* and overlap tremendously between the sexes. Sex no more determines one's personality than it determines one's height. Sex certainly *influences* these traits, but it does not *determine* them. For instance, most of us know females who are taller than most males, and males who are shorter than most females, though we are all aware that males are, on average, taller than females. In humans, the same is true for behavioral traits.

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I am an evolutionary behavioral ecologist, and most of my work is concerned with how individual

differences in behavior (i.e. personality) influence individual fitness, and the collective behavior and success of animal societies. Most are probably not aware, but animal personality research is a vibrant field within behavioral ecology due to the ubiquity of personality as a phenomenon in nature, and its ability to explain interactions both within and between species. In nearly every species tested to date for the presence of personality, we've found it, and sex-linked personality differences are frequently the most striking. Sex-linked personality differences are very well documented in our closest primate relatives, too, and the presence of sexual dimorphism (i.e. size differences between males and females) in primates, and mammals generally, dramatically intensifies these differences, especially in traits like aggression, female choosiness, territoriality, grooming behavior, and parental care.

Given that humans are sexually dimorphic and exhibit many of the typical sex-linked behavioral traits that any objective observer would predict, based on the mammalian trends, the claim that our behavioral differences have arisen purely via socialization is dubious at best. For that to be true, we would have to posit that the selective forces for these traits inexplicably and uniquely vanished in just our lineage, leading to the elimination of these traits without any vestiges of their past, only to have these traits fully recapitulated in the present due to socialization. Of course, the more evidenced and straightforward explanation is that we exhibit these classic sex-linked behavioral traits because we inherited them from our closest primate ancestors.

Counterintuitively, the social justice stance on human evolution closely resembles that of the Catholic Church. The Catholic view of evolution generally accepts biological evolution for all organisms, yet holds that the human soul (however defined) had been *specialy created* and thus has no evolutionary precursor. Similarly, the social justice view has no problem with evolutionary explanations for shaping the bodies and minds of all organisms both between and within a species regarding sex, yet insists that humans are special in that evolution has played no role in shaping observed sex-linked behavioral differences. Why the biological forces that shape all of life should be uniquely suspended for humans is unclear. What is clear is that both the Catholic Church and well-intentioned social justice activists are guilty of gerrymandering evolutionary biology to make humans special, and keep the universal acid at bay.

Despite there being zero evidence in favor of Blank Slate psychology, and a mountain of evidence to the contrary, this belief has entrenched itself within the walls of many university humanities departments where it is often taught as fact. Now, armed with what they perceive to be an indisputable truth questioned only by sexist bigots, they respond with well-practiced outrage to alternative views. This has resulted in a chilling effect that causes scientists to self-censor, lest these activists accuse them of bigotry and petition their departments for their dismissal. I've been privately contacted by close, like-minded colleagues warning me that my public feuds with social justice activists on social media could be occupational suicide, and that I should disengage and delete my comments immediately. My experience is anything but unique, and the problem is intensifying. Having successfully cultivated power over administrations and silenced faculty by inflicting reputational terrorism on their critics and weaponizing their own fragility and outrage, social justice activists now justifiably think there is no belief or claim too dubious that administrations won't cater to it. Recently, this fear has been realized as social justice activists attempt to jump the epistemological shark by claiming that the very notion of *biological sex*, too, is a social construct.

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As a biologist, it is hard to understand how anyone could believe something so outlandish. It's a belief on a par with the belief in a flat Earth. I first saw this claim being made this year by anthropology graduate students on Facebook. At first I thought they mistyped and were simply referring to gender. But as I began to pay closer attention, it was clear that they were indeed talking about biological sex. Over the next several months it became apparent that this view was not isolated to this small friend circle, as it began cropping up all over the Internet. In support of this view, recent editorials from *Scientific American*—an ostensibly trustworthy, scientific, and apolitical online magazine—are often referenced. The titles read, "[Sex Redefined: The Idea of 2 Sexes Is Overly Simplistic](#)," and "[Visualizing Sex as a Spectrum](#)."

Even more recently, the most prestigious scientific journal in the world, *Nature*, published [an editorial claiming](#) that classifying people's sex "on the basis of anatomy or genetics should be abandoned" and "has no basis in science" and that "the research and medical community now sees sex as more complex than male and female." In the *Nature* article, the motive is stated clearly enough: acknowledging the reality of biological sex will "undermine efforts to reduce discrimination against transgender people and those who do not fall into the binary categories of male or female." But while there is evidence for the fluidity of sex in many organisms, this is simply not the case in humans. We can acknowledge the existence of very rare cases in humans where sex is ambiguous, but this does not negate the reality that sex in humans is functionally binary. These editorials are nothing more than a form of politically motivated, scientific sophistry.

The formula for each of these articles is straightforward. First, they list a multitude of intersex conditions. Second, they detail the genes, hormones, and complex developmental processes leading to these conditions. And, third and finally, they throw their hands up and insist this complexity means scientists have no clue what sex *really* is. This is all highly misleading and deceiving (self-deceiving?), since the developmental processes involved in creating *any* organ are enormously complex, yet almost always produce fully functional end products. Making a hand is complicated too, but the vast majority of us end up with the functional, five-fingered variety.

What these articles leave out is the fact that the final result of sex development in humans are unambiguously male or female [over 99.98 percent of the time](#). Thus, the claim that "2 sexes is overly simplistic" is misleading, because intersex conditions correspond to less than 0.02 percent of all births, and intersex people are *not a third sex*. Intersex is simply a catch-all category for sex ambiguity and/or a mismatch between sex genotype and phenotype, regardless of its etiology. Furthermore, the claim that "sex is a spectrum" is also misleading, as a spectrum implies a continuous distribution, and maybe even an amodal one (one in which no specific outcome is more likely than others). Biological sex in humans, however, is clear-cut over 99.98 percent of the time. Lastly, the claim that classifying people's sex based on anatomy and genetics "has no basis in science" has itself no basis in reality, as any method exhibiting a predictive accuracy of over 99.98 percent would place it among the most precise methods in all the life sciences. We revise medical care practices and change world economic plans on far lower confidence than that.

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Despite the unquestionable reality of biological sex in humans, social justice and trans activists continue to push this belief, and respond with outrage when challenged. Pointing out any of the above facts is now considered synonymous with transphobia. The massive social media website Twitter—*the* central hub for cultural discourse and debate—is now actively banning users for stating true facts about basic human biology. And biologists like myself often sit quietly, afraid to defend our own field out of fear that our decade of education followed by continued research, job searches, and the quest for tenure might be made obsolete overnight if the mob decides to target one of us for speaking up. Because of this, our objections take place almost entirely between one another in private whisper networks, despite the fact that a majority of biologists are extremely troubled by these attacks to our field by social justice activists. This is an untenable situation.

It is undoubtedly true that trans people lead very difficult lives, which are only made more difficult by the bigotry of others. But social justice activists appear completely unwilling or unable to distinguish between people who criticize their ideology and people who criticize their humanity. Their social immune system appears so sensitive that it consumes itself. We need to acknowledge that trans issues and ideology are complex, and concern one of the most marginalized communities in the world. Because of this, we must give these issues the respect they deserve by approaching them with [nuance and compassion](#) instead of crudeness and cruelty. But we must not jettison truth in this process. If social justice activists require scientists to reject evolution and the reality of biological sex to be considered good allies, then we can never be good allies.

Back when evolution was under attack from proponents of Biblical Creation and Intelligent Design,

academic scientists were under no pressure to hold back criticism. This is because these anti-evolution movements were almost exclusively a product of right-wing evangelicals who held no power in academia. Now we have a much bigger problem, because evolution denialism is back, but this time it's coming from left-wing activists who *do* hold power in academia. This makes the issue both harder to ignore and harder to remove. Social justice and hyper-militant trans activism now seems to act as a kind of anti-universal acid, and not merely a strong buffer solution. While the universal acid of evolution eats through old cherished beliefs and replaces them with deeper understanding and a clearer picture of reality, the anti-universal acid of social justice ideology is a recklessly destructive force, aiming to abolish scientific truth and replace it with relativistic postmodern nonsense.

I did not train to be a scientist for over a decade just to sit quietly while science in general, and my field in particular, comes under attack from activists who subvert truth to ideology and narrative. When I reflect on my initial reasons over a decade ago for choosing a career as an academic scientist, it was largely due to the inspiration I felt from outspoken public intellectuals like Richard Dawkins, Sam Harris, Stephen Fry, and the late Christopher Hitchens, who led by example and followed reason wherever it took them. At the time, it seemed to me that a career as an academic scientist would be the most intellectually satisfying profession imaginable. It would allow me to dive deep into questions at the frontier of human knowledge, teach and train students to think critically, and pass on the virtues of boldly engaging with unreason in the search for truth to a new generation.

But it seems clear to me that academia now is not as it was advertised a decade ago when I started down this path. It is no longer a refuge for outspoken, free-thinking intellectuals. Instead, it seems one must now choose between living a zipper-lipped life as an academic scientist, or living a life as a fulfilled intellectual. Currently, one cannot do both.

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