

EVOLUTION, SCHEMEVOLUTION:

JON STEWART AND THE CULTURE WARS

MASSIMO PIGLIUCCI

"Are we characters in a dubious fairy tale written thousands of years ago in the depth of human ignorance, or random globs of cells who got a little luckier than the fucking slime that grows on our shower towels?" This was the opening question in *The Daily Show* series "Evolution, Schmevolution," one of the most daring attempts at exploring a serious and controversial issue in the history of fake news TV. *The Daily Show* appropriately timed the series to air during the momentous trial that took place in Dover, Pennsylvania in the fall of 2005. The plaintiff in the case *Tammy Kitzmiller vs. the Dover Area School District* contended that the theory of "intelligent design" (ID) shouldn't be taught in public schools on the grounds that it's a form of creationism, and that teaching it would amount to a clear violation of the separation between Church and State.¹

Stewart's opening question goes straight to the heart of why there's a controversy between creationists and evolutionists and not, say, between creationists and quantum physicists: people have an intuitive understanding of the philosophical implications of the idea of evolution, while the consequences of quantum mechanics in this context are much more nuanced (another reason why quantum mechanics is usually left alone is that, as Nobel physicist Richard Feynman reminded us, nobody *really* understands quantum physics, not even quantum physicists). Stewart's framing of the problem is reminiscent of another famous source of popular scholarship, Monty Python, in their immortal opus *The Meaning of Life*: "Why are we here? What's life all about? / Is God really real, or is there some doubt? . . . What's the point of all this hoax? / Is it the chicken

and the egg time? Are we just yolks? / Or, perhaps, we're just one of God's little jokes." And so on and so forth.

Of course, phrasing the question as an either/or choice may in itself represent a classic example of logical fallacy, the false dichotomy, in which someone presents two options as exhausting all possibilities, when in fact there are more positions that can be reasonably taken. During the "Evolution, Schmevolution" series, Lewis Black, a regular *Daily Show* commentator, points out that presenting an issue as an either/or choice may not be the wisest thing to do, and indeed may lead to rather silly outcomes:

The scientific method has taken us pretty far: we've cured diseases, sent men to the moon, given erections where before there were none. . . . Religion has also inspired man to do some pretty great things [*showing image of the Sistine Chapel's ceiling*]. The problem is, when you try too hard to apply science to religion, both come off looking ridiculous.

So, what's the real status of the scientific theory of evolution? And what do people mean by "intelligent design?" More generally, what's the proper relationship between science and religion, not to mention politics, in early twenty-first century America? This chapter will examine these and other weighty questions through the inquiring minds and sharp tongues of Jon Stewart, Lewis Black, and *Daily Show* "correspondent" Ed Helms. While the four episodes of the "Evolution, Schmevolution" special may have changed few minds on this topic, the series represents a good example of humorous yet engaging intellectual discourse, addressing complex philosophical questions, even peppered with instances of logical fallacies committed by the host, his correspondents, or some of the guests.

Evolution: The Fundamentals

Scientific theories are complex statements about the workings of the natural world, and they're notoriously difficult to frame in straightforward and understandable terms. This explains why scientists are famously inept at communicating with the general public (with few

remarkable exceptions such as Carl Sagan, Stephen J. Gould, and Richard Dawkins).² This ineptness was on display during Ed Helms' interview with primatologist Dan Wharton at the Bronx Zoo. The guy managed to remain as stiff and humorless as the quintessential ivory tower intellectual even when Helms launched into a discussion of the comparative anatomy of human and chimpanzee penises (although, to be fair, *The Daily Show's* editors did their best to accentuate the effect on poor Dr. Wharton):

Nonetheless, in the opening monologue to the "Evolution, Schmevolution" series, Stewart gave a succinct but substantially correct summary of the Darwinian theory, using a diagram portraying the classic example of giraffes with necks of different lengths, one of which was clearly more adapted to reaching high tree leaves than the others (there was also a "really cool" but alas unlikely mutant version which could spit fire from its nostrils). Essentially, Darwin's theory is based on two fundamental insights: on the one hand, all living creatures are related to each other by common descent; on the other, organisms differentiate from each other and adapt to the ever-changing conditions of their world.³ The main mechanism for this latter process is natural selection. Natural selection, in turn, is simply the result of the fact that animals (and plants) differ from each other (because of mutations in their DNA) in transmissible traits that affect their survival and their ability to produce offspring. Those that manage to survive and have more babies will pass more of their winning characteristics to the next generation, where the game will start all over *ad infinitum*. That's pretty much it, though there are a few additional complications, and the whole story can be told in much more precise (and quite a bit more complicated) mathematical terms.

Philosophers of science have sometimes debated the scientific status of Darwin's theory. Karl Popper (the father of "falsificationism," the idea that scientific theories can't be proven correct, but must be capable of being proven wrong) at one point stated that "Darwinism is not a testable scientific theory, but a metaphysical research program."⁴ This pronouncement is often quoted by creationists, although Popper later admitted that his earlier views on the subject were mistaken: "I have changed my mind about the testability and logical status of the theory of natural selection; and I am glad to have an opportunity to make a recantation."⁵ If only such intellectual

honesty were more common in these sorts of debates! Popper's error aside, the consensus among philosophers of science is that the theory of evolution is a legitimate scientific theory, characterized by a mix of historical claims (common descent) and experimentally verifiable natural processes (mutation and selection). As Patricia Cleland effectively sums it up, it isn't rocket science, but it's very solid science nonetheless.⁶

What sort of evidence can scientists possibly muster in support of their statements about life forms that are now extinct? In part, the evidence is the sort of inferential logic based on fossil records that Lewis Black highlights in his "Evolution, Schmevolution" commentary. As he puts it:

Scientific theory is based on observations made in the real world. . . . [For] little creationists there is 'D' is for *Dinosaurs*, where kids are taught that before the Flood all dinosaurs were vegetarian. Makes sense, especially when you look at this early dino-skeleton [*points to a fossil of a meat-eating dinosaur*]: those 80 dagger-shaped teeth and huge claws were perfect for chasing down and killing any plants that try to run away!

That, in a nutshell, is the scientific method.

Why, Then, Is There a Problem?

While watching "Evolution, Schmevolution," one could be forgiven for concluding that the theory of evolution ought to be uncontroversial for the simple reason that it makes sense. This would be the same sort of mistake that a politically liberal viewer of *The Daily Show* might make when concluding that, say, it's pretty obvious that the United States shouldn't have invaded Iraq (Stewart's ongoing series "Mess O' Potamia" is probably worth a book in and of itself). But the fact is that evolution is highly controversial in the United States. More than 50 percent of Americans surveyed in various Gallup polls reject the theory entirely, and many more accept it only with the proviso that God is somehow controlling the process. Explanations for the predominant American view include a long and complex history

of anti-intellectualism peculiar to the US and the sorry condition of scientific literacy in the population at large.⁷

The “problem” was clear for everyone to see when Ed Helms visited Dayton, Tennessee, the site of the original “monkey” trial of 1925, during which substitute science teacher John Scopes was tried and eventually convicted of teaching the “false doctrine” of evolution (the only time evolutionists have actually lost a court case).⁸ Helms interviewed locals while pretending that they were actually impersonating characters from 1925. As he put it: “So come on down and enjoy Dayton, safe in the knowledge that it’s all pretend. Because if it were real, it would be fucking terrifying.” Indeed, a woman interviewed by Helms candidly stated an astonishingly common position among the American public: “Evolution is a total fabrication and a lie. Evolution destroys faith and builds an economic market that is contrary to our American way of life.”

Of course, the creation-evolution controversy, while not a scientific debate, has several root causes – not just scientific ignorance and religious bigotry. Stewart’s crew subtly brought to the public’s attention the political element at work. The controversy has been exploited politically ever since three-time Presidential candidate William Jennings Bryan volunteered to be on the prosecution team against John Scopes in 1925, facing the famous (or infamous, depending on your point of view) liberal lawyer Clarence Darrow, activist and prominent member of the then newly established American Civil Liberties Union. During the “Evolution, Schmevolution” series, Stewart brought in Chris Mooney, author of *The Republican War on Science*, to weigh in on the broader issue of the relationship between politics, science, and religion. Stewart pointed out that putting a political spin on scientific findings is nothing new, and that Republican and Democrat administrations alike engage in such practice. Mooney replied that the current situation is different because “The scientific community [is] coming out and releasing strong statements saying that the [Bush] administration abused science across the board. And I would trust the scientific community to diagnose whether science has been overtly politicized.” The second President Bush actually came out in favor of creationism as a competing theory, stating on August 3, 2005 that “That decision [about teaching creationism in public schools] should be made by local school districts, but I [feel] like both sides ought to be properly taught. . . . I

think that part of education is to expose people to different schools of thought.” This is the standard (and rather disingenuous) ID line of “teaching the controversy.”

Mooney, addressing the broader contention that disagreement within the scientific community implies that we should seriously consider all positions on an issue, said that no matter how well supported, “Scientific knowledge is by its nature tentative, so you can selectively say ‘Oh, we don’t know enough about global warming,’ when in fact we know a heck of a lot. . . . It’s the same about evolution. . . . The war on science is compelled by corporate interests and religious conservative interests.”

Stewart then pursued this general line by presenting the possibility of a postmodern position on truth: “Will scientific debate, then, become in the same way that a court case becomes, in that . . . if you hire the right experts you’ll do better. . . . In the way, let’s say, OJ Simpson puts together a nice team and hires guys who say ‘DNA means nothing!’” This point about the alleged relativity of truth and knowledge is a serious one that philosophers have discussed ever since the ancient skeptics argued that there can’t be certain knowledge of any kind. The long tradition of rationalism in philosophy, from Plato (ca. 427–ca. 347 BCE) to Descartes (1596–1650), argued for the milder position that while empirical knowledge (based on what the senses tell us) is unreliable, the mind can access truth by using logic and applying it to first principles (culminating in Descartes’ method of “radical doubt”). Then again, empiricists like David Hume (1711–76) pointed out that there’s very little, if anything, about the outside world that we can come to know in this way, and the best we can hope for are rather tentative conclusions based on admittedly incomplete empirical evidence. As a result, science – which emerged as a blend of rationalism and empiricism – is a messy business yielding rather tentative conclusions. According to Mooney, this situation doesn’t sit well with the need for relatively simple answers in both the political and religious arenas. In this respect, it’s interesting to note the awkward and philosophically untenable position in which religious fundamentalists put themselves when they resort to claiming that scientific knowledge is relative. Surely they don’t want to go as far as claiming that *all* knowledge is relative to one’s culture or ideological position, since that would undermine their own religious stance. The same applies to the extreme postmodernist position, which

is often attacked on the ground that if no point of view has any special claim to truth, why should one regard the postmodern position itself as having any more value than any of the many possible anti-postmodernist positions?⁹

What is Intelligent Design, Anyway?

The “Evolution, Schmevolution” series was prompted, as mentioned earlier, by the trial in Dover. That trial was important in the history of the controversy because it was the first time that the idea of “intelligent design,” and not just standard “the earth is 6,000 years old” creationism, was being tested in a court of law. But what exactly is ID? Once again, Stewart and his collaborators did a surprisingly good job of getting to the bottom line in a clear and entertaining way. As Stewart said: “Put simply, Intelligent Design says life on earth is too complex to have evolved without some kind of guiding hand. They are not saying it’s God, just someone with the basic skill-set to create an entire working universe.” This captures the alleged (and clearly disingenuous) distinction between creationism and ID, the very same “distinction without a difference” that made Judge Jones impatient at the Dover trial: “The evidence at trial demonstrates that ID is nothing less than the progeny of creationism. . . . Compelling evidence supports the Plaintiff’s assertion that ID is creationism relabeled.”

To further probe this matter, Stewart convened a panel discussion featuring leading ID proponent William Dembski, historian John Larson, author of *Summer for the Gods*, and New Age spiritualist Ellie Crystal.¹⁰ Dembski opened the discussion with an interesting philosophical move: according to him, ID proponents don’t deny natural selection, since “it’s not either/or – there can be design that’s implemented through [natural selection].” This suggests that evolutionary biologists are guilty of committing the fallacy of false dichotomy that we already encountered at the beginning of this chapter. Of course, strictly speaking, Dembski is correct: science can’t rule out supernatural oversight of natural processes, simply because the supernatural is outside the purview of science. Since by definition the supernatural can’t be subjected to empirical investigation and experimentation, the

possibility advanced by Dembski – usually referred to as theistic evolution – can’t be excluded on scientific grounds. This, however, is a somewhat Pyrrhic victory for ID.¹¹

ID’s proponents, beginning with Dembski himself, repeatedly claim that ID is good science. Stewart highlights the contradiction when he brings up the following example: “Let me ask you this: Intelligent Design, the scrotum, the most painful part of my body. This intelligent designer chose to put it in a bag that anyone can walk across and hit with a baseball bat.” To this Dembski could only reply with a rather evasive “ID is not committed to every aspect of reality being the result of intelligence.” Well, then, how do we know which bits of reality ID is committed to explaining?

While Stewart clearly meant the scrotum reference as a joke (indeed, he thanked Dembski for considering the question seriously enough to attempt to address the point), he was actually right on the mark. If a supernatural (or, for that matter, natural) intelligent agent is directing evolution from behind the scenes, then that agent is responsible not just for the marvels of biological complexity and success, but for the apparent stupidity and inefficiency that plagues the biological world.¹² This is why I said theistic evolution results in a Pyrrhic victory for ID. Let’s not forget, as evolutionary biologist Ernst Mayr observed, that 99.99 percent of all species that ever existed are now extinct. Not exactly a record to be proud of if one aspires to the title of creator and engineer-behind-the-scenes of the universe!

Of course, a weaker interpretation of Dembski’s claim of non-mutual exclusivity is that religion and science aren’t inherently incompatible, contrary to what has been asserted on various occasions, for example, by biologist Richard Dawkins.¹³ Stewart posed precisely that question to the historian on the panel, John Larson, who pointed out that “we are talking about science here, the problem with divine intervention, a miracle, is that it’s not repeatable, it’s not testable in a laboratory, it’s not falsifiable.” In other words, ID proponents simply can’t have it both ways: either there’s a supernatural designer who works outside of the confines of natural laws – in which case ID isn’t science and shouldn’t be taught in public schools as such – or ID has to make some claims that are empirically verifiable and so be open to the possibility that such claims may be shown to be false. Once again, Dembski’s rebuttal is rather weak: “I’m not talking about the big G, I’m saying that there are organizing principles.” But of course

no scientist has ever claimed that there are no (natural) “organizing principles” generating the order and complexity that we see in the universe. Natural selection is supposed to be precisely one such organizing principle!

Stewart saw through Dembski’s rhetoric, and promptly asked him, “What came first [for you], the religion [*sic*] conversion or the evidence convincing you?” to which Dembski admitted “the religious conversion came first.” Now, strictly speaking, Stewart was very close here to committing the genetic fallacy, rejecting an argument not on the grounds of its weakness, but because of where it comes from. One might also diagnose this as coming close to the *ad hominem* fallacy, rejecting the view because of the view holder. Just because, say, a racist biologist publishes a paper purportedly showing evidence of genetic differences in the cognitive abilities of different ethnic groups, one can’t reject the paper simply on ideological grounds. Proper scientific analysis requires the evidence presented in the paper to be assessed on its own merits, regardless of the ideological positions of the author. Nonetheless, the fallacy occurs only if one concludes from the character of a given individual that his ideas are *necessarily* flawed. Stewart obviously stopped far short of that, simply hinting at the curious fact that while the scientific community includes people of all religions, ID proponents are invariably committed to a narrow range of Christian (or Muslim) conservative positions. It doesn’t follow that ID proponents are wrong, but it would be disingenuous or naive not to be suspicious of their motives and possible biases.

So, Evolution or Schmevolution?

Jon Stewart began the “Evolution, Schmevolution” series by promising (obviously in jest) that the public would finally know the answer by the end of the week. Again this is analogous to Monty Python’s promise in the title song of *The Meaning of Life*: “So just why, why are we here? / And just what, what, what, what do we fear? / Well *ça soir*, for a change, it will all be made clear / For this is *The Meaning of Life*.” Just as Monty Python didn’t really “solve” the meaning of life, neither did Jon Stewart solve the evolution-creation controversy. Perhaps figuring out the meaning of life is a personal matter,

something that’s up to particular individuals to work out for themselves. One might be tempted to see an analogy between the two questions, and argue that the solution to the evolution-creation controversy is also a personal matter, not an issue that can be resolved by objective external evidence. In a sense, this may be the case; let me explain, by way of a short digression.

Meaning in life is not to be found in external, objective mandates (unless one believes that such meaning can come from a god, and one also has reason to believe that that god’s message has been transmitted loud and clear). Rather, individual human beings construct meaningful lives out of their physical possibilities and limits, their cultural biases and practices, and their innate desires. As Aristotle would have put it, “happiness” (although the Greek word *eudaimonia* really has a broader meaning than the roughly equivalent English term) is a work in progress, and we can’t assess the outcome until death puts an end to the quest. It’s for this reason that it makes little sense to ask the simplistic question: what is *the* meaning of life?

Similarly, it might seem to make equally little sense to seek a resolution to the evolution-creation controversy. Scientists and philosophers of science have convincingly argued that there’s simply no *scientific* controversy here.¹⁴ From a philosophical standpoint, ID isn’t science, because it doesn’t include empirically verifiable statements, and because it invokes a supernatural intervention which is by definition outside the realm of scientific investigation. From a scientific perspective, there’s just about as much disagreement among professional biologists on the modern theory of evolution as there is among physicists on the mathematics of quantum mechanics – pretty close to zero. Of course, both theories may eventually be superseded or significantly altered in the future, but certainly not by vague statements about intelligent organizing principles. In this sense, the evolution-creation debate is similar to the debate on global warming, as Chris Mooney pointed out to Stewart: the scientific community increasingly converges toward one answer, but the public is divided on the issue because of the political and ideological muddling that seeps through the media’s treatment of it. Ironically, Jon Stewart’s approach to the evolution-creation controversy ranks as one of the best media treatments of the debate in recent memory.

In another – non-scientific – sense, however, the “solution” to the controversy is and can only be personal, in that individuals have to

make up their minds about whether they're willing to fully accept a scientific-rationalist worldview, or whether they'd rather pick and choose which aspects of a pre-Enlightenment mentality they wish to retain. One can certainly enjoy the benefits of science – from laptop computers to air travel to modern medicine – while still engaging in mystical thinking about intelligent designers and worldwide floods that never happened, but this comes at the risk of much cognitive dissonance and social strife, not to mention philosophical untenability. Although we're free to choose either side, we may not be free to choose either wisely.

The Daily Show series on evolution ended on a semi-sober note, with a brief outline of the matters that should really concern us. Forget supernatural intelligent design, the real problem is that humans have now learned enough about genetics and evolution to actually start tampering with the basic structure of life itself. Stewart and company take aim at genetic engineering and cloning while depicting scientists as aloof, out of touch with what's important to humanity, engaging in intellectual games for their own sake (as in the case of efforts to clone cats, which Stewart characterizes as “making copies of something no one needed to begin with”). Indeed, a basic problem with the creation-evolution controversy is that in one camp we have an army of anti-intellectuals who distrust science, and in the other a small elite band of intellectuals who largely think it beneath them to explain to the general public what they're doing and why (despite the fact that it's the general public that pays their bills). Stewart introduced the “Evolution, Schmevolution” series by saying, “The stage was now set for an epic debate between the forces of science on one side and religion on the other. One side says ‘You're backwards, and primitive,’ the other side says ‘You're godless, and love Satan.’ Sadly, the debate itself has not evolved in over 150 years.” Indeed.

Notes

- 1 The trial ended with a resounding victory for the evolution (Plaintiff's) side. Judge Jones, presiding over the case, concluded: “We find that ID fails on three different levels, any one of which is sufficient to preclude a determination that ID is science. They are: (1) ID violates the

centuries-old ground rules of science by invoking and permitting supernatural causation; (2) the argument of irreducible complexity, central to ID, employs the same flawed and illogical contrived dualism that doomed creation science in the 1980s; and (3) ID's negative attacks on evolution have been refuted by the scientific community.”

- 2 For example, Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York: Random House, 1995); Stephen J. Gould, *The Panda's Thumb* (New York: Norton, 1992); Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design* (New York: Norton, 1996).
- 3 Charles Darwin, *The Origin of Species by Means of Natural Selection: Or, The Preservation of Favored Races in the Struggle for Life* (New York: A. L. Burt, 1910 [1859]).
- 4 Karl Popper, “Darwinism as a Metaphysical Research Program,” in *But Is It Science? The Philosophical Question in the Creation/Evolution Controversy*, ed. Michael Ruse (New York: Prometheus, 1996), pp. 144–55.
- 5 Karl Popper, “Natural Selection and the Emergence of Mind,” *Dialectica* 32 (1978), pp. 339–55, and his letter to *New Scientist* 87 (August, 1980), p. 611.
- 6 Patricia Cleland, “Historical Science, Experimental Science, and the Scientific Method,” *Geology* 29 (2001), pp. 987–90.
- 7 For a discussion of the various causes and forms of creationism, see Massimo Pigliucci, *Denying Evolution: Creationism, Scientism and the Nature of Science* (Sunderland, MA: Sinauer, 2002), especially chapter 3.
- 8 For a discussion of the history and aftermath of the Scopes trial see Pulitzer Prize-winner Edward J. Larson, *Summer for the Gods: The Scopes Trial and America's Continuing Debate over Science and Religion* (New York: Basic Books, 1997).
- 9 For example, philosopher Paul Feyerabend famously argued that astrology and rain dances have as much a claim to being a source of knowledge as science, and that their dismissal by scientists is motivated by intellectual elitism or downright racism. It's hard to encounter a more irrational view of science and knowledge among professional philosophers. For a more balanced treatment of the positive and the nonsensical in postmodernism's attitude toward truth, see Ian Hacking, *The Social Construction of What?* (Cambridge, MA: Harvard University Press, 1999).
- 10 Why the panel didn't feature an evolutionary biologist is a mystery that shall go unsolved until Jon Stewart reads this chapter and writes to me about the inner workings of his mind. I won't mention Crystal again,

since her rambling was so incomprehensible even Stewart didn't quite know what to do with her!

- 11 The term refers to the ancient king Pyrrhus of Epirus, who attacked and defeated the Roman legions on two occasions in 279 BCE. However, his losses were so great that they eventually made it impossible for him to continue the war, which was eventually won by the Romans (who had home field advantage, and could more readily count on fresh troops). According to the Roman historian Plutarch: "The armies separated; and, it is said, Pyrrhus replied to one that gave him joy of his victory that one other such would utterly undo him."
- 12 This "argument from bad design" is essentially the same that has plagued Christian apologists since Thomas Aquinas, and is a particular version of what is known in theology as the problem of evil.
- 13 Dawkins' most complete attack on religion can be found in *The God Delusion* (Boston: Houghton Mifflin, 2006).
- 14 For example: Niall Shanks and Karl H. Joplin, "Redundant Complexity: A Critical Analysis of Intelligent Design in Biochemistry," *Philosophy of Science* 66 (1999), pp. 268–82; Elliott Sober, "The Design Argument," in *The Blackwell Guide to Philosophy and Religion*, ed. William E. Mann (Oxford: Blackwell, 2001), pp. 117–47; and Matt Young and Taner Edis eds., *Why Intelligent Design Fails: A Scientific Critique of the New Creationism* (New Brunswick: Rutgers University Press, 2004).