The Intelligent Design Controversy

Playing Whack-a-Mole in Science Education & Philosophy

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Early in the 19th century the physicist Laplace is said to have shown Napoleon his latest work on planetary motion, refining even further the precision of the Newtonian clockwork solar system. Napoleon, a science geek himself, noticed there wasn't any mention of God—to which Laplace is reputed to have replied: "I have no need of that hypothesis."

That disconnect between a purely mechanistic scientific worldview based on natural processes and the popular retention of "well, God must somehow be involved in it" has persisted as the fundamental logjam in the otherwise productive relationship of science, technology and society. As we'll see, it pops up like an immortal hydra in education and politics, and understanding how that has come about has practical consequences for how to deal with it.

The first thing to know is that the majority of the American public today cannot accept the idea that life (including us—*especially* including us) has come to be the way it is in just the same way as planetary systems and mountain ranges. That nobody planned it.

The argument over Intelligent Design is only the latest installment in this long-running show. I have dubbed it Creationism Lite ("All the Ideology But Even Less Fact") to distinguish it from its more literal cousin, the regular Creationists, who believe the world was created around 6000 years ago just as the Book of Genesis said. But however they may differ on the number of zeros they recognize for the age of the Earth, the camps unite on many fundamentals. Demographically they are politically conservative Judeo-Christians, who focus on natural evolution only as part of a much broader campaign to restore America to what they perceive as its proper place: overtly acknowledging the Christian foundations of the country and rejecting liberal experiments like gay marriage or ObamaCare, or belief in global warming.

They are engaged in a cultural struggle—a *Kulturkampf*, to borrow Otto von Bismarck's phrase from the 19th century. Which is why we encounter it not just in church pulpits, but also at the election box and public school curricula. That's where the war is being fought.

First: some history.

● The Genesis of Modern Creationism: Fallout from the (non) End of the World

Having survived the 2012 Mayan apocalypse, we can remember another End of the World. This one didn't take place back in the 1840s, in upstate New York, back then the flaky Southern California of the 19th century. In this Rip Van Winkle country, the Spiritualist movement, the Mormon Church, and the Millerites appeared. Convinced that Jesus Christ was about to come back, Rev. Miller's followers sold their belongings and marched up the hillside to await the great event. They even did it again after Miller

recalculated. The second failure of the Second Coming did cause doubt to spread, though, and the movement fell apart. But this didn't mean believers reformed their way of thinking. Instead most went on to form the core of a new religion: Ellen White's Seventh Day Adventists, from which sprang not only modern Creationism, but today's breakfast cereals, via White's eccentric health advisor John H. Kellogg—yes, the Corn Flakes Kellogg.

Ellen White's great contribution to modern creationism was Flood Geology, the idea that Noah's Flood was a real event, accounting for all those fossils uniformitarian geologists had by then worked out as representing millions of years of natural evolution. Her main public advocate here was George McCready Price, a self-styled "geologist" who would have testified at the Scopes Trial in 1925 had he not been busy on a trip to Europe. Price's writings proved very popular among American creationists for whom the 20th century was becoming increasingly uncomfortable. One reader of Price was Henry Morris, a civil engineer who trimmed away any lingering Adventist associations to repackage the whole thing in the 1960s as Creation Science.

Morris' *Institute for Creation Research* is active to this day (I get their glossy *Acts & Facts* magazine freebie in my mail box every month). Another major player is Ken Ham's *Answers in Genesis* (the bunch behind the Creation Museum in Kentucky) where you may learn how the dinosaurs on Noah's Ark included docile pre-Flood tyrannosaurs that employed their 8-inch serrated steak-knife teeth and massive shock-absorbing skulls to gnaw on bark or melons. I'm not making this up.

Now if you think the Young Earth Creationists are a population fringe, you'd be wrong. Polling data consistently shows that about 45% of Americans believe these things, including at least 10% of public school science teachers. This group first flexed its muscle back in the 1980s. Fueled by the rise of the Religious Right, Arkansas and Tennessee tried to put Scientific Creationism into schools in a "balanced treatment" approach, authored by creationist activist Paul Ellwanger—we'll get back to him later. These efforts were soon derailed though by the Supreme Court ruling that you can't slip factually preposterous religious doctrines like that into a science course, no matter how pretty the paper you try to wrap them in.

Around this time several new players appeared on the scene to dilute the public perception of antievolutionism as intrinsically religious. In 1984, Charles Thaxton, Walter Bradley, and Roger Olsen's *The Mystery of Life's Origin* picked through the limited research on prebiotic chemistry to argue that life could not have originated naturally.

Another was the book *Of Pandas and People*. Put out by a group of Texas creationists, its text was summarily revised after the court losses in the 1980s to replace references to "creationism" with a more neutral phrase: "Intelligent Design." Even though its argument hadn't changed, the new *Pandas* could be fielded as a secular resource along with the Thaxton book because, after all, neither explicitly mentioned any Creator.

The third player in the budding Design movement was Australian biochemist Michael Denton, author of *Evolution: A Theory in Crisis* in 1985. Evolutionary theory wasn't actually in crisis, but it looked good enough to people who knew even less about modern evolutionary thinking, from Phillip Johnson, Berkeley lawyer who wrote the immensely influential *Darwin on Trial* in 1991, to Michael Behe, another biochemist whose

Darwin's Black Box in 1996 put the "irreducible complexity" argument on the antievolutionary map. This was the idea that some biochemical systems are too interlocked to have evolved by stepwise modification from functioning precursors—things like the immune system, or blood clotting.

Creationists had long argued that complex living things effectively ruled out natural explanation, so Behe's idea wasn't that original. In fact, his most famous example, the bacterial flagellum, a rotating whip-like propeller composed of many critical components, had actually been lifted (complete with its illustration) from Denton's book. What Behe did though was to crystallize the argument and give it a name that stuck: irreducible complexity.

Behe and Johnson soon joined other advocates at the Discovery Institute, a conservative Seattle think-tank originally bent on regional business development and privatizing Social Security. Philosophy professor Stephen Meyer eventually moved over from Whitworth College in Spokane (pulling down a hundred and fifty grand at the Discovery Institute, by the way, which I suspect is a far better deal for him than an associate professor's pay at his old college).

Mathematician William Dembski also came on board to promote his "specified complexity" approach, inspired by the logic of the Thaxton *Mystery of Life's Origin* book. In books like his *No Free Lunch* in 2002, Dembski argued that genetic information and processes represent coded information that in principle could not possibly have originated or developed by natural means. And because Dembski's arguments are long on formulas and confidence, the imprimatur of mathematical certainty about them, "specified complexity" has been a very attractive ID argument.

The devil's in the details, though, and there Dembski slams into a wall, for in none of his writings has he ever bothered to illustrate his argument with actual DNA. He'll use Scrabble Tiles, or Mount Rushmore, as analogies for his principles, not dive into things like the homeobox genes that govern the higher level organization of animals (such as front versus back) to show whether "specified complexity" explains anything about them, compared with regular genetics where natural gene duplications account for their variety and evolving functions.

While Dembski is short on specified detail, he's not short on ego: modestly describing himself at one point as the "Isaac Newton of Intelligent Design Information Theory."

One other figure at the Discovery Institute warrants notice: Jonathan Wells, a combative Unification Church minister whose 2000 book *Icons of Evolution* quickly took off as *the* ubiquitous resource for modern creationists. And it's not hard to understand why: Wells insists that evolutionists are manipulative frauds who regularly distort the evidence, from the dino-bird *Archaeopteryx* to the peppered moth (where bird predation of moths against darker smoke polluted trees led to a color change from light to dark, and back again once air pollution was curtailed).

If you're a creationist who needs somehow to dispose of all the contradicting evidence of regular science, it's a lot easier to do that if you have someone like Jonathan Wells telling you that scientists are a bunch of fakers and frauds. Especially so if you never check up on Wells, which is not something the creationist is prone to do. When you do, though, you discover it is Wells who is the charlatan here, leaving out relevant information on a truly majestic scale.

The result of all this effort in the Intelligent Design movement has been lots of books written, conferences held, interviews given. But in the end not really anything like a workable theory: what exactly was designed, and when? And once designed, how much natural variation has come into play since? You can search the design literature in vain for any such discussion, which is why the movement has had to temper its tactics. You can't do some "equal treatment" Ellwanger option if you don't have a view to teach. So the tendency has been to backpedal to things like "teach the controversy" (as though the controversy wasn't one of their own making). Though only *their* controversy, by the way—Ancient Astronaut believers or Holocaust deniers apparently don't get to play.

In any case, teachers and students these days are advised to use "critical analysis" to study the "strengths and weaknesses" of evolution (or climate change, or other topics dear to the *Kulturkampf* subculture). Though curiously enough, the advocates of this tactic never quite get around to acknowledging that evolutionary theory has any *strengths*. Instead critics focus exclusively on the supposed "weaknesses"—which consists (surprise!) of the same arguments creationists have been making all along, including use of that reworked textbook, *Of Pandas and People*, this time with new sections supplied by Michael Behe and Stephen Meyer.

The recent 2005 court ruling in Dover, Pennsylvania, vividly described in Lauri Lebo's book, *The Devil in Dover*, turned on exactly this point. The presiding Judge Jones (a conservative appointee of the most recent President Bush) was promptly tarred as an "activist judge" by the Discovery Institute when he identified ID as bad science pushed by a block of creationist proponents who lied under oath about how they had slipped *Of Pandas and People* into the school library. Dover turned into a comedy of errors, as the Discovery Institute bailed out of officially testifying (leaving Michael Behe to crash and burn as his limited understanding of the technical literature became evident under cross examination), and suggested that no matter how quickly supporters tried to move the goalposts, it still wasn't going to be fast enough to hide the fact that they don't actually have a ball on the field.

That's the critical competitive failure of modern antievolutionism: the inability to account for all the evidence—*all of it*—as well or better than your opponents, of *earning* your place at the table fair and square, not having it snuck in after the mob storms the museum. Indeed, on the purely factual front, antievolutionists are so far behind the evidential curve that they don't know there's a curve they're behind. They think they're on a straightaway, clueless as to how much information lies just around their mental event horizon.

But this doesn't mean they can't be a politically powerful force and raise a considerable stink every now and then. What does it say about the state of the modern Republican Party, for instance, that the members it deems qualified to serve on the House Science Committee include bumpkin Ralph Hall and "legitimate rape" Todd Akin, climate change skeptics Mo Brooks and Dana Rohrabacher, as well as the venerable Paul Broun, who recently fumed that evolution and the Big Bang are "lies straight from the pit of Hell."

In the recent election, Mitt Romney's point man Rick Santorum (who also ran for President, remember) liberally mixes Intelligent Design, climate change skepticism, and populist fears about secular colleges corrupting the minds of students. Brent Bozell's

Cybercast News Service (formerly the *Conservative News Service*) performs the same role online, as does the more religiously inclined *World Net Daily* website.

Antievolutionary dogmas also circulate freely at the think tank level. The Heritage Foundation hosts ID speakers like Stephen Meyer and promotes the movie *Expelled: No Intelligence Allowed* reinforcing the Discovery Institute view of modern science as one oppressing the brave band of evolution critics. The Heritage Foundation also provides a forum for Jay Sekulow, the Christian ideologue in charge of Pat Robertson's legal arm, the *American Center for Law and Justice*. It was thus no surprise when *Kulturkampf* warrior Jim DeMint quit his seat in the Senate to head the Heritage Foundation (with a hefty increase in salary likely to lubricate the move).

It is unlikely that any of the people attending the Heritage Foundation affairs, or following Rick Santorum's activities in the conservative media, or absorbing the postings at CNS or WND, have ever directly encountered any genuine technical literature on hominid evolution or Greenland ice loss—or be particularly skilled at evaluating them if they ever did. Millions of people are allowing one side to filter both sides of issues for them, and translate their myopia into votes every election cycle, leaving the hapless scientific community to try and make a case for research funding to a House Science Committee increasingly staffed by scientific illiterates.

Do we really think this isn't going to matter?

The depth of the problem cuts to the very core of sound reasoning, as one specific case all too clearly illustrates.

- A Madness to Their Method: Applied ID in Science and Education

In 1999 a pro-creationist clique elected to the Kansas State School Board proceeded to revise their science standards to cordon off "evolutionary" explanations, though by that they meant a heck of a lot more than just Darwinian common descent with modification. For Young Earth Creationists have a lot more to object to when it comes to educational housecleaning. Since the whole universe is only some 6000 years old, all that Big Bang stuff about galaxies forming over billions of years has to be wrong ("lies straight from the pit of Hell" per Rep. Broun) so out it must go.

Now those in the Intelligent Design camp who are not Young Earth Creationists have a completely different view of the Big Bang. For them the scientific corroboration of a starting point in time, the Creation, is just dandy. You might think then that this Big Bang issue would have been a fault line, dividing the YEC antievolutionists from the Bang-friendly ID camp. But you'd be wrong. While evolutionary critics of the Kansas standard changes regularly called attention to how the Big Bang had been banned too, the ID side simply ignored it, painting the case solely as one involving opposition to macroevolutionary materialism. This included articles by Michael Behe and Jonathan Wells. But more curiously, the *Institute for Creation Research* and *Answers in Genesis* took the same tack. It was as though all parties to the antievolutionary campaign were taking their cues from the same playbook: pushing this anti-Big Bang angle might be a bad marketing move, so better not mention it. Hide the ball big time.

Indeed I could find only one instance where the subject came up: Phillip Johnson in his 2000 book *The Wedge of Truth: Splitting the Foundations of Naturalism*. During the

twenty pages he devoted to the Kansas controversy, Johnson touched on the cosmological angle only briefly, in a footnote:

> The board's final version of the standards also omitted any specific reference to the big bang and suggested that "at least some stratified rocks may have been laid down quickly, such as Mount Etna in Italy or Mt. St. Helens in Washington State." This lent support to claims that some board members favored a young-earth version of creationism, but the main issue was the elimination of macroevolution from the category of required subjects.

Let's get this straight: the explicit rejection of the Big Bang and the incorporation of Flood Geology mantras into the Kansas science curriculum only *lent support* to such claims? Evidently for Johnson flushing billions of years of geological and cosmological history down the drain was of mild concern compared to the "main issue" of exorcising the macroevolutionary hobgoblin.

But the situation was even worse than a failure to acknowledge the role of Young Earth Creationism here. For standing behind the creationists on the Kansas State School Board was the man who actually wrote the standards: one Tom Willis, of "The Creation Science Association of Mid-America." And Willis not only defends strict Young Earth Creationism—he also supports the scientific legitimacy of *geocentrism*.

That's right. Tom Willis thinks that the idea that the earth revolves around the sun is *not* a settled issue. And he's not alone. Remember our Mr. Ellwanger who wrote the "equal time" creationism standards back in the 1980s? Yep—another geocentrist. The two main efforts to dislodge evolutionary thinking from schools in the later 20th century turn out both to have been driven by the thought processes of people who have serious doubts that the earth revolves around the sun.

Now do you think that such people might have a problem processing other information? And that consequently bystanders might show a little hesitation before jumping on any bandwagon steered by such people? You might legitimately think so, especially when you look a little deeper at how Tom Willis' approach to reasoning filtered through the *Kulturkampf* network.

Consider Phyllis Schlafly, conservative activist (and like Phillip Johnson, another lawyer by training). Schlafly's Eagle Forum has for many years complained about liberal bias across the land, and Ann Coulter holds her in high esteem. Schlafly's son promotes the creationist *Kulturkampf* cause at his *Conservapedia* website, which he founded to compete with the supposedly too liberal and secular *Wikipedia*.

But back to Schlafly and Willis.

After several of the creationist Kansas school board members lost reelection, there were enough votes for the board to reverse gears and restore the pro-evolutionary viewpoint, which did not sit well with Mrs. Schlafly, who fulminated about the new board's "dumbing down science in order to promote evolution."

Which was a most interesting way to put it, given that her Eagle Forum's idea of sound scientific education included lectures by none other than "Dr." Kent Hovind, a pseudoscientific nimrod whose views are so off the map that even his fellow Young Earth Creationists don't take him seriously. For those of you unfamiliar with the amazing

"Dr." Hovind, he got his "doctorate" from Patriot University—a mail order outfit that currently operates out of a suburban tract home in Colorado. For many years Hovind engaged in a busy national lecture schedule, which he was able to afford by not paying his income tax, which is why he is presently in the slammer serving a 10-year sentence for tax evasion. In the meantime his son is carrying on dad's great work—yippee.

Anyway, in the original evolutionary version of the Kansas standards, 8th Graders learning about the HISTORY AND THE NATURE OF SCIENCE were told to "Display open-mindedness to new ideas," and specifically to "Share interpretations that differ from currently held explanations on topics such as global warming and dietary claims. Evaluate the validity of results and accuracy of stated conclusions."

But the Willis bunch didn't like that attitude. Instead they replaced it with a call to "Learn about falsification," and offered this single example:

> What would we accept as proof that the theory that all cars are black is wrong? How many times would we have to prove the theory wrong to know that it is wrong? Answers: One car of any color but black and only one time. No matter how much evidence seems to support a theory, it only takes one proof that it is false to show it to be false. It should be recognized that in the real world it might take years to falsify a theory.

Now this argument was included in the standards solely because it was considered relevant to disposing of evolution—and apparently *only* evolution. Hence Phyllis Schlafly's specified umbrage over its removal in the revised 2001 Kansas standards. As she put it: "Evolution can encounter difficulties with the falsification test."

But is that true *only* of evolution … or *even* of evolution?

Schlafly was acting as if the logic only ran one way. Why was it *evolution* that was the "all cars are black" hypothesis being refuted, and not *creationism*? By framing the debate in this way, defenders of the 1999 Kansas standards were treating creationism as the default position—the truth that would be established solely by the discovery of only one counterexample to push evolution off the table permanently.

Let's stick with cars for the moment to see what's wrong with this argument. Finding one black car only falsifies the extremely general statement "all cars are black." It would hardly disprove the more qualified assertion that "*most* cars are black." For that, you'd have to determine the relative proportion of black and non-black cars. Things get even more complicated when you address *historical* questions, like "most cars *used* to be black." Now you have to recognize the record of previous car production and ownership—not the current distribution, no matter what it may be.

And, by the way, back in the early 1920s, when Henry Ford had cornered over half of American car sales, it was probably true for a lot of cities that most cars were black, that being the only color the Model T came in by then.

But there is something even screwier about the way Willis framed falsification. For while the existence of even one non-black car would indeed sink the "all cars are black" idea, it wouldn't allow you to conclude all the *black* cars aren't **black**. Yet that's precisely what the standards were trying to do with evolution: transforming the existence of any falsifying evidence into a blanket rejection of the main premise. And doing so without ever bothering to examine any of the "black car" evolutionary evidence.

At this point we're at the dark heart of what can happen when people who think the Earth might not revolve around the sun get their hands on a public school science standard. For Willis was committing a truly monumental category mistake: treating *observations* (that certain cars were black) as though they were *theories* about why the cars were that color. The mere discovery of non-black cars would not necessarily have any bearing on the validity of a theory about why the black cars were black. That would be true if and only if the mechanism being proposed to account for blackness absolutely precluded the existence of non-black cars. Willis didn't consider that idea.

Translated into what the creationists really were exercised about, "macroevolution," the recognition that some animals might not have been related by common descent wouldn't inevitably rule out the idea that others *were* related that way. That evidence would still exist, and would need to be evaluated on its own merit.

What we're seeing in the 1999 Kansas case is the same scorched earth policy legions of creationists indulge in when they invoke the Cambrian Explosion of animal phyla half a billion years ago as a way to ignore all the remaining fossil evidence supporting the natural development of animal life. It's a problem religious interpretations of the natural world have been grappling with for quite some time.

● The Pitfalls of Natural Philosophy

Although there are a few non-religious critics of evolution (Michael Denton and David Berlinski come to mind) they are a miniscule minority who spend a lot of time not thinking about the deeply religious motivations of the majority of antievolutionists. And we also know that the grassroots of modern creationism are no vague advocates of Design but full-blown Young Earth Creationists (plus a scattering of geocentrics for spice), as Kansas and Dover have glaringly illustrated.

What that majority is exercised about is the conflict modern science poses for their religion. Phillip Johnson illustrates this neatly in the books he wrote after *Darwin on Trial*, such as *The Right Questions: Truth, Meaning & Public Debate* penned in 2002. If only people would come to realize how flimsy evolutionary evidence is, he argued, that prop for materialism would be gone, and the evangelist can move in to ask the "right questions" until the reader sees the light and finds Jesus. No problem.

But reviving Natural Theology in this way (the idea that you can leverage the existence of God by pointing to the designer handiwork) can't possibly work. That's because the "strengths and weaknesses" (to borrow a phrase) of Johnson's Christianity don't depend in the slightest on all this Darwinian kerfuffle—or any purely physical issue—and won't go away even if you established that evolutionary mechanisms don't make the cut.

We know this because of Thomas Paine. His *Age of Reason* relentlessly laid out all the internal problems with the Bible fifteen years before Darwin was born. None of his arguments are undermined in the slightest by whether or not theropod dinosaurs spawned the birds back in the Jurassic. That someone as bright as Johnson (who got into Harvard when he was 16) could think this approach could fly shows how closely Johnson is to Willis whilst falling down the antievolutionary rabbit hole.

Dinesh D'Souza stepped into the same trap more recently in a debate with the late Christopher Hitchens, trying to buttress the existence of his Christian God by pointing to

"fine tuning" aspects of the physical constants of the universe, none of which had a "Designed by Jesus Christ" label attached to them. Hitchens rather deftly skewered D'Souza by accusing him of "trying to slip God through customs without declaring Him."

For creationists Natural Theology is only a bridge, not their destination. In the end they don't really care about the design of trilobite eyes or why sauropods developed additional neck vertebrae. Their target is elsewhere: without God (their God, nobody else's) human beings are left to shrivel up in a bleak universe devoid of purpose and meaning, bereft of all morality—dogs and cats, living together.

Religionists and atheists don't make much headway against each other in these contexts because they are arguing at cross-purposes, on different turf. Like evolutionists approaching the living world from the current data and working backwards to explain as much as possible, atheist critics start with the observed diversity of religious opinion and ask why any one religion (that of the person they're arguing with, for example) should be privileged above all others.

Atheists are pressing a fundamental philosophical issue: can any religion be held to be more or less likely to be true than any other, and on what basis you determine that. Take any room full of people, even at church, and what you have is a room full of atheists—that is, if you measure "atheism" the old fashioned way: failure to believe in a particular religion. That's how Thomas Jefferson or Benjamin Franklin were accused of being "atheists"—they were indeed, if you define atheism as a failure to accept one particular favored version of God.

Ask how many of them believe in Zeus, or Thor, or Quetzalcoatl—let alone more current models like Vishnu, the quasi-god Buddha, or (dare we include) the Flying Spaghetti Monster. Everyone in the room will be an *atheist* in this qualified sense. The only difference between the religious believer and Richard Dawkins is that Dawkins adds one more name to the list of gods they don't believe in. Thus philosophically all religionists are "atheists minus *one*".

Because religionists are trying to march to their perceived high ground of morality, while atheists are firing at them from the broader field of comparative religion, neither may notice that between them a genuine sinkhole has appeared.

In my Tortucan speech that's on your reading list I called attention to Stephen Jay Gould's Non-Overlapping Magisteria (or NOMA) concept, that there exists an evidential and conceptual divide between science and religion. And that I think that Gould got it almost right: there is a divide, but not between science and religion. Rather it's between *decidable* versus *undecidable* propositions. Science is the tool of choice to evaluate the truth of decidable propositions; philosophy is what you need to work through all the undecidable ones. For the sake of convenience I've decided to dub my variation NOMA^{D}.

I contend that philosophers have been dancing around this problem for quite some time, without fully realizing it. A nice example concerns William Clifford, a brilliant 19th century American mathematician who, had he lived a bit longer, might well have beaten Albert Einstein to relativity theory. Unfortunately Clifford died young, so we'll never know. In one of his later essays Clifford declared as a general principle that a reasonable person should never believe *anything* without sufficient evidence. And, as

examples of things that didn't sound very plausible using that yardstick, he included belief in biblical miracles.

This confident expression of atheistic rationalism has had a host of practical followers, from Bertrand Russell to Carl Sagan, and I imagine most secularists today would let out a hearty hoorah in defense of it. Me too.

Except there is a snag here, a big one, and William James called attention it in his essay, "The Will to Believe." To be fair, this was long after Clifford was dead, so we have no way of knowing how he might have modified his views in response to James' question, which was this: aren't you assuming that all true beliefs are things for which you can in principle find sufficient evidence?

What if that isn't true? And the area James alluded to concerned not Bible stories, but more fundamental moral and ethical matters, the *shoulds* and *oughts* of daily life, the very turf religionists today are so keen to defend as their proprietary hill. Never mind whether any particular god or gods exist, are "good" or "bad" things *good* or *bad*, and how do you decide?

Questions like these are undecidable because what you ultimately can't settle are the standards of evidence for accepting them. That's why such issues never go away, never get resolved, in the way decidable scientific propositions do, like the earth revolving around the sun (Ellwanger and Willis notwithstanding).

It's not that science and reasoning play no role here, but only in a special way, after a stand is taken on a particular undecidable. That's where William James comes in handy again. His idea of *pragmatism*—it can't decide for you what to believe when it comes to undecidable propositions, but it can suggest what might happen *if* you chose to believe a certain way.

Free will is an example. Philosophers and scientists tie themselves in knots debating whether we actually do have a measure of free will, which may be a clue that this is an undecidable proposition. Purely mechanistic systems can be that way after all, as the Qualia problem shows (do all people have the same *experience* when we see the same color or hear the same sound), so our brains could be a fully naturalistic system and yet still have features about its operation that must elude our scientific grasp. But however undecidable the existence of free will may be, its consequences drop into the decidable realm, for scientists can pragmatically measure what happens when a person *believes* in free will. As it turns out people who believe they have free will tend to be less likely to cheat you than people who don't.

This idea will be raising some conceptual hackles, I am sure, but I'm not done yet.

I contend that many of the most important questions of our life—meaning, purpose, morality, ethics, art, theater, justice—all hinge on undecidable propositions, things you can't weigh or measure or calculate, and yet are just as consequential as any block of granite. I argue you don't "discover" or "determine" that axe murdering your neighbor's child is right or wrong, or that Beethoven or Bartók are or are not "beautiful" music, in the way you discover matter is made of atoms composed of quark particles. You believe them to be so, or not—you take a stand on them—as a guide for behavior.

The most important undecidable propositions of life are not objects or findings—they are directions and paths. And with that you are planting your feet firmly on what is *not* terra firma. That is what embracing an undecidable means.

Ricky Gervais (as atheist as all get out) hit on the profound truth of this in *The Invention of Lying*, where a world where people can't invent imaginary afterlives is also one where no theater or literature exists. Ray Bradbury's *Fahrenheit 451* on dystopian book burning is a made up story—it's a lie. But would we want to live in a world where there are no Bradburys or Shakespeares to "lie" at us in this way?

Edmund Gwenn's Oscar-winning performance as Kris Kringle in *Miracle on 34th Street* tread similar turf half a century earlier, playing a man who believes himself to be Santa Claus. In a clinical sense, he's delusional. But, by living his life *as* Santa Claus he ultimately enriches everyone who knows him. Frankly, I'm on Kris Kringle's side in the movie, not Maureen O'Hara's hyper-skeptical realism, believing it was in her daughter's best interest to teach her not to believe in Santa Claus because he was just an imaginary character people had made up (another of those *lies*).

Even Daniel Dennett (in his recent book, *Breaking the Spell: Religion As A Natural Phenomenon*) has come to see the practical utility of a cultural system that pretends to believe in things like Santa Claus. In a sense it is a tooling mechanism for cognitive stability, much in the way exposure to some dirt and bacteria are actually essential to prime our immune systems. Because, if you think about it, how fragile would a human mind have to be if, when they come to the terrible day when it dawns on them there ain't no Santa Claus (or Montag in *Fahrenheit 451*), they fall apart completely, into paralyzing angst because they'd been "lied" to?

No, it can be argued that human culture probably works better composed of minds who can do tricks like pretending in Santa Claus, along with music and justice. And even gods. The cognitive skill turns on figuring out which of our imaginary playmates we really can do without once we become adults, and how to keep the majority of imaginary playmate believers from getting on each other's nerves, or killing one another.

But back to Clifford and James … the final take home point of their debate should not be whether atheism or religion can make some slam-dunk argument to settle unresolvable issues like the "meaning of life" but rather: don't believe things without *understanding* them. Figuring out which of your beliefs are decidable scientific ones, and which are actually undecidable philosophical ones, and how those zones can intertwine in quite complicated ways. Knowing the limits of the evidence, and always playing fairly with opposing views, especially in areas that are really philosophical rather than scientific ones you can settle with some definitive experiment.

Follow that methodological track and you stand a much better chance of keeping your own tortucan ruts from eroding so deep that you start falling into them.

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