“An Ill Wind in Tortuca”

Or: how creationism (its existence and persistence) tells us a lot about how people think, even when they’re not being creationists, and how all this affects the way freethought secularism ought to approach the bigger world.

An address by James Downard, presented to the Kennewick, Washington Freethought Society on October 25, 2009 (text posted at Panda’s Thumb January 6, 2010).

A friend of mine and fellow member of our local Inland Northwest Freethought Society, Jason, kindly recorded my talk and the various questions afterward from the audience. The main speech itself he posted in three parts on Youtube and elsewhere (retitled for there as “The Absurdity of Religion: Tortucan Traps” to give it a bit more kick as a teaser title). Anyone interested in viewing the video original can google “Downard Tortucan Traps” and the Youtube installments will pop right up. I got into a pretty fast delivery speed for it, for which I apologize.

Any questions or comments viewers may have may be addressed to me directly at RJDownard@aol.com.

<u>Here is the main body my lecture, as near as to verbatim as I can manage:</u>

The “tortuca” part of this talk involves a new word I’ll be defining shortly, but before I get to that we have to start with a very basic question: How do people believe things that aren’t true?

I don’t think any legitimate philosophical system can get away from that issue. People believe all sorts of things, and some of them are *wrong*. Unless you’re contending that *all* beliefs are in fact true, and I’m afraid that’s a non-starter. It’s that mutual contradiction issue (A=!A in the math jargon). The earth can’t be revolving and *not* revolving around the sun. There’s a decidable *science* proposition for you: heliocentrism, yes—geocentrism, no.

Whether that Bill Shakespeare guy actually wrote all those plays and sonnets attributed to him is a less obviously decidable *historical* proposition. If we move on to whether it’s a sound idea to sacrifice human hearts to Quetzalcoatl to keep the sun rising, well that’s a religious proposition but it’s also utterly decidable. Heart sacrificing: wrong and stupid. But when we move to other doctrines, such as whether Jesus Christ was actually the incarnate son of a triune god of Abraham, we’re dealing with issues that are *undecidable* in a way the other three aren’t. What that distinction means for the practical debating strategy of secular thinking I’ll be getting back to.

So, how do people who believe things that aren’t true do that? Are they just being stupid, or wicked—to borrow Richard Dawkins’ rather smug characterization of

antievolutionists. As it happens, Dawkins was just on comedian Bill Maher's *Real Time* talk show on HBO (October 2009). With the popularity of creationism, Maher asked him how people could believe such things. Dawkins reminded Maher that evolution depends on variation, and apparently there was a spectrum of brain variation in human beings, with Sarah Palin at one end and Einstein at the other. Big laugh.

But is that actually telling us much? Is faulty belief merely the absence of *intelligence*? Stupid people believe silly things, bright people don't. Indeed, Dawkins has tried to popularize the term "Brights" to apply to people (like himself of course) who have escaped falling into the quagmire of false belief.

As a marketing slogan for freethinking "Bright" is not only patronizing, I think it's *wrong*. The ability to believe things that are not true has very little to do with intelligence. To see this, try plotting Isaac Newton on Dawkins' Palin-Einstein index. Where exactly does he fit? Newton is incontrovertibly one of the greatest scientists who ever lived. And simultaneously could believe in all sorts of Bible prophecy claptrap, wacky enough to entertain even the most extreme wing of Sarah Palin's miracle mongering evangelical subculture.

Or take Phillip Johnson, the avatar of the modern Intelligent Design movement. He got into Harvard when he was sixteen—and yet he's been able to totally doubt the validity of natural evolution. How he manages to do that obviously has less to do with whatever intelligence is supposed to be, and more to do with what it means to believe things in the first place.

The first impulse is to notice how Johnson had got God, and came to the conclusion in his nice analytical lawyer way that natural Darwinian evolution (as characterized especially by scientists like Richard Dawkins) represented a threat to traditional religion and therefore had to go. So was all this simply a matter of religious fervor, blinding otherwise bright minds in the light?

Like a lot of critics of creationism I thought that was all that was going on. That is, until I bumped into Richard Milton. The editor of British Mensa magazine, Milton's 1997 book *Shattering the Myths of Darwinism* argued not only that evolutionary theory was unfounded, but that the modern geological system was wrong too. Milton was swallowing, hook, line and sinker, a litany of Youth Earth Creationist arguments about geochronology—but without any religious motivation. The secular Brit had arrived in YEC-land without starting in Genesis.

Whatever was going on in *his* head wasn't about religion. So what was? Well, when you looked close at how he constructed his arguments, Milton was assembling his views the same way Phillip Johnson was: only paying attention to the parts he wanted to pay attention to.

The same was true of everybody else in the antievolution biz, from Young Earth Creationist Duane Gish to Old Earth Creationist Hugh Ross to every one of the ID gang at the Discovery Institute: Michael Behe, William Dembski, Jonathan Wells, and so on.

The behavioral pattern of over-reliance on secondary scholarship (thinking that reading Smith telling them about Jones could substitute for actually reading Jones) turns out to be a common pathology for *everybody* who holds positions that aren't true. People read or believe things that other people tell them are so, and then their brains

stop. Don't take the next step of defining standards of evidence and casting the net as wide as possible, to better determine where the truth might lie.

Religion has nothing to do with this failure—it's the method that is their madness. And that is just as true of Erich von Däniken's Ancient Astronauts as it is of Ann Coulter. Just watch the recent National Geographic channel documentary on the 9/11 conspiracy theorists and you'll see yet another illustration of exactly what I mean.

None of these people had hit on some fantastically new way of thinking badly—they all use the *same* system of bad thinking. All that separates them is what they are thinking badly about.

This realization only puts us where people like Michael Shermer already are: recognizing a commonality to faulty belief systems. What it doesn't do is finish the loop: tell us what might be going on inside the head of somebody when believing things that aren't true, and perhaps even relate it to broader cognitive processes in the human mind.

Which is why I kept being reminded of a scene from a movie. It was Spencer Tracy grilling Frederic March on the Bible in Stanley Kramer's 1960 film version of *Inherit the Wind*. (I asked then how many present had seen *Inherit the Wind* and called for a show of hands.)

Well, for those who haven't, it is the fictionalized account of the famous 1925 Scopes antievolution "Monkey Trial" in Tennessee, over their law forbidding the teaching of evolution in public schools. The 1950s play was very much a parable of intolerance in the waning days of the McCarthy era. The Bible-spouting William Jennings Bryan became "Matthew Harrison Brady" (played by March in the movie) and his secularist opponent Clarence Darrow was "Henry Drummond" (Tracy's part).

After legal maneuvering prevented Darrow from introducing any scientific witnesses he pulled one of the great ploys in legal history by calling Bryan to the stand as an expert on the Bible. Unwilling to be pinned down on how long the days of creation were, **Brady** harrumphed: "The Bible says it was a *day*."

Drummond persisted: **"**Well, was it a normal day, a literal day, a 24-hour day?"

Brady hemmed again: "I don't know."

Drummond leaned in close: "What do you think?"

A *long* pause followed. "I do not think about things I do not think about."

Whereupon **Drummond** fired back: "Do you ever think about things that you *do* think about?"

You could accuse the screenwriters of just setting up a good punch line here, except Bryan and Darrow had actually said those things. And it kept resonating in my head as something that was profoundly true. The Matthew Harrison Bradys of the world really *didn't* think about things they didn't want to think about—and weren't very good either at thinking about the things they *did* think about.

Isn't that precisely what is going on for all the people who believe things that aren't true? No matter how bright they may be in other ways, no matter how carefully educated they have been, such people are perfectly capable of simply not thinking about whatever it is they don't want to think about.

Such people suffer from Matthew Harrison Brady Syndrome—MHBS for short, which works really well as an acronym too: MH*BS*

But MHBS is only part of the story. It has to be applied somewhere, directed at some object of desire. And here is where all that religion and politics enter the picture. The religious belief is what a Phillip Johnson or a Duane Gish applies their MHBS aptitude to. For the nonreligious Richard Milton it is at scientific Mysteries with a Capital M.

People with similar motivations but less MHBS may fall on a different point of the spectrum. There is evidence that there may be a God Module (or more likely a variety of them) in the brain. If so, President Obama's new director of the NIH, Francis Collins, is a likely candidate. But however strong his spiritual epiphany beneath a waterfall may have been, he apparently isn't nearly high enough on the MHBS side of the graph to overcome what appears to be a quite careful scientific mind.

Without any motivational urges, and no MHBS to fuel them if there were, you end up at the rarity of people like Arthur C. Clarke or Richard Feynman, insatiably curious minds that strive only to figure out what's *actually* true, and doing their best to work out precisely how to do that.

Which leaves us staring at the upper end of the chart, at those high incident MHBS minds that have some internal motivations or desires smoldering away. What do we call them? There's the problem: we don't actually have a word for them. That is, until now.

The image I had of such people were like turtles, hunkering down under their shell, feet tucked in, able to see only the tunnel vision reality visible out the hole, living beneath a carapace utterly impervious to all the contrary evidence or argument you might lob at them. It simply falls off the shell, no damage done. But I didn't want to call these folk "turtles"—if only because I might want to discuss turtles and didn't want to generate any confusion. But I didn't want to let go of the image either, so I cast about for a surrogate term, and as it happens the Latin for turtle is *tortuca*.

Now I had a term that could be applied, imagery and all, without any excess conceptual baggage (except for people who speak Latin, but no matter). A *tortucan* is a person possessed of a very strong MHBS, who manifests that trait in the defense of equally powerful belief systems. Their cognitive landscape is riddled with what might be called "tortucan ruts"—zones of thought that channel how they perceive and process information relating to the objects of their interest.

Not every aspect of their mind would be governed by such ruts, though—which means they could be as reasonable as all get out when dealing with things outside their boundaries. The tortucan model of the mind frees us from the obligation of seeing faulty belief as an all or nothing proposition. Rather than falling on some simplistic Palin-Einstein line of intelligence, any individual human mind can embody both tortucan and non-tortucan elements.

It was at this stage that a disconcerting realization came to me. In this concept of the tortucan mind I was building up, there was nothing in principle to preclude the possibility of a highly MHBS intellect mapping onto belief systems that were *true*. This

meant that we had to look far more closely at the thought processes and methods on the opposite side of the fence—atheists versus religionists, secularists versus cultural warriors.

It occurred to me that when people have arrived at a correct position, we may be more than likely to overlook logical flaws in their reasoning because we can agree with the end result. But following the logic of mathematics it is not good enough to merely get the right answer—it is important to have arrived at it through a correct and appropriate line of reasoning. Only by making that methodological distinction can the larger role of the tortucan mind in the human community be detected and its possible extent measured.

So how often are we cutting our fellow secularists and freethinkers more slack than their method deserves? I had found examples over the years of scientists on the "right" side of an issue who nonetheless exhibited what may be tortucan ruts of their own. I've already noted the prickly case of Newton, but he was no secularist. Closer to home would be Carl Sagan, who had a variety of notions that were not all that well thought through. For example, he had a colossally naïve innocence when it came to how scientific progress related to economic processes. It's part of the reason why the Greeks and Romans never developed a genuine scientific method—they lacked the economic and cultural incentives that drive such things.

Another example of a tortucan in secular clothing would be the late environmentalist Garrett Hardin. A socially liberal evolutionist, Hardin popularized the term "tragedy of the commons" in the 1960s—but it was reading one of his later books on the need to reform anti-abortion laws (*Mandatory Motherhood* it was called) that brought Hardin under my methodological microscope. I was not unsympathetic to his overall argument (being to this day a pro-Choice guy in the abortion department) but I also couldn't help spotting something astonishing about how he went about supporting his case. At one point Hardin cited a Czechoslovakian study to show the deleterious fate awaiting unwanted children. Indeed, Hardin thought so much of this study that he reprinted the whole thing as an appendix. And that was his mistake, for it turned out that *none* of the conclusions he had drawn from it were justified. The paper repeatedly hedged its findings as not statistically significant, and yet Hardin had gone ahead and treated them all as if they were.

Ever since then, I have termed the action of going out of your way to call attention to the very data that blows your own argument to smithereens as "doing a Garrett Hardin."

If MHBS is indeed real, and the tortucan mind is a genuine cognitive phenomenon, is it possible to characterize it scientifically? Test for it in the mind, isolate its neurological properties, and so on. I think so. A recent paper by Sam Harris and others in the *Annals of Neurology* (February 2008) showed one way when they conducted fMRI studies of belief, disbelief, and uncertainty. They asked volunteers a variety of questions to which they were to indicate whether they believed the statement to be true, not true, or were unsure about it. Most of these were innocuous questions like "California is larger than Rhode Island," or "Eagles are common pets." But slipped into the mix were some far

more contentious items: “A Personal God exists, just as the Bible describes,” or (for atheists), “There is probably no actual Creator God.”

Now the Harris study researchers were expecting the brain to engage in some fireworks when those questions came up, but to their surprise the brain seems to be processing them all the same. Whether believing in a big California, disbelieving that people keep eagles as pets, or the existence or non-existence of God, the brain lit up with the same intensity (or lack of it) for all of them. The important point was that *different* sections of the brain were involved, one part kicking in when expression of positive belief applied, yet another area when the subject disbelieved it, and yet a third zone applying to things the person wasn’t sure about.

Most interestingly, the disbelief side was in a brain section related to actual physical *distaste*, so that the act of not believing something was using neural paths related to things like eating a rancid pear. The Harris study was not the only one to find such connections, which suggests that there is a big neurological difference between believing in things and disbelieving in them, and this may not depend on what it is that is being disbelieved in (evolution or God, for instance).

These findings shouldn’t come as a shock from a tortucan model perspective, where there wouldn’t necessarily be a difference in the cognitive architecture between tortucan religionists and tortucan atheists, versus non-tortucan religionists or atheists. As for detecting the difference between tortucans and non-tortucans, though, there is I think a sure-fire way to do it.

Tortucans should be able to perceive internal contradictions (those A=!A problems again) without difficulty. We know, for example, that a Hank Hanegraaff (the Young Earth Creationist radio show “Bible Answer Man”) is perfectly capable of laying out all the many internal inconsistencies in the Book of Mormon. And that’s because Hank is not a Mormon. Put Bible contradictions in front of him, though, and he no longer sees them as problems. I would suggest those are falling within his tortucan ruts and consequently are governed by a different set of cognitive circuits.

Put Hank in the MRI during this and there should be a discernable difference in what the brain is doing. The normal suite of uncertainty detectors that would swing into play when reading the Book of Mormon might still start up, until the brain realized (possibly well before any conscious perception) that one of the tortucan ruts was being entered, in which case a new signal (say from the emotion gatekeeper, the amygdala) swamps the normal response, all without the conscious Bible Answer Man being any the wiser.

If such research is undertaken and MHBS is established as a real cognitive system, then there are some potentially interesting implications for how we deal with a natural population that includes tortucans.

My gut suspicion is that the tortucan phenomenon falls along a normal distribution bell curve, with very few people (the Feynmans of the world) populating the low end, far more people in the middle bump (the Carl Sagans and Francis Collinses and Garrett Hardins) and relatively few occupying the far MHBS fringe (which certainly includes all contemporary creationists, Holocaust and HIV/AIDS deniers, and Apollo moon landing hoax believers).

From an evolutionary perspective that distribution may have been well-honed by selection pressure, which would suggest that there are some darned good reasons why there are as many tortucans as there are.

If you think about a tortucan rut in a mild form, you can see that it is not necessarily a bad thing for a thinking species to have. The single-mindedness of it may well have contributed to our survival. It's the spirit of the soldier who fights on against all odds, or the scientist who perseveres in spite of public rebuke. As a culture we tend to admire those things (within limits): think Galileo (who had a knack for not knowing when to back off).

Unfortunately the tortucan rut is also the property of the religious or political zealot, from the Inquisition to the French Revolution's guillotine. Religions and politics may well be inherently tortucan-friendly pursuits.

Given our history then, there is every reason to think that human societies are perfectly capable of getting along quite nicely, thank you, with the tortucan mix they have. Of course when extreme tortucans get in charge, you run the risk of those societies spinning out of control, as the mid-range tortucans are all too able to follow the pull of the motivated leadership right off the cliff (from Quetzalcoatl human sacrificers to Nazi death camp engineers).

Which means the role of the secularist and freethinker is not to try to remake the human nature tortucan bell curve to make it more Richard Dawkinsish. Indeed, this may be intrinsically impossible. But rather our goal is far more social: to contribute to and encourage the institutional brakes that minimize the likelihood of any tortucan extreme from getting their mitts on the reins of power in the first place.

While you can't change a tortucan's mind, you can keep them from being a nuisance.

How do we do this? Not by disengagement. The recent book *The Secular Conscience* by Austin Dacey stresses exactly these points: that liberal freethinkers have retired from the public debate all too long, unnecessarily hampered by a Privacy Fallacy that moral and social goods are merely private convictions, not something that civil secular societies must grapple with openly via reasoned argument.

This is where the decidable/undecidable dichotomy I mentioned before comes back into the picture. When Stephen Jay Gould sought to defuse the religion versus science debate by proposing his NOMA argument (that the two fields occupied "non-overlapping magisteria") he got a lot of criticism from both camps. Skeptical thinkers rightly noted how religions seem prone to overstepping the line (think Intelligent Design) while religious philosophers bristled at having their world circumscribed into a privatized moral and ethical limbo, where "science" took care of everything important.

In my view Gould had got the problem almost right. It is not an issue of science versus religion, though, but rather *decidable* propositions (naturally the province of objective scientific investigation) versus *undecidable* ones (where philosophy rightly governs).

Religions happen to be a peculiar form of philosophy whose purported revelations tended in their ignorance to venture factual or historical statements that blundered into

the decidable realm. Just as sacrificing people to Quetzalcoatl to sustain terrestrial rotation is a refutable idea, so is the Book of Mormon's pre-Columbian pseudo-history, or the literal Flood of Ken Ham's "Answers in Genesis" Christianity, where herbivorous tyrannosaurs nap with Noah's children on the Ark. But if you venture downstream to the religious beliefs of a Francis Collins you are no longer in a position to pry Jesus off the field with a purely *scientific* lever. Wrong he may well be (and I think he is) but not for decidable reasons, and the same caveat applies to any religious system whose doctrines avoid leaking over the boundary into decidable questions.

On the other side, we must also remember that science is not a natural way for people to think. The tortucan part of us is all too willing to only pay attention to the things that reinforce what we want to be true. The scientific method (with its focus on precision of thought, an open culture of peer review, and ultimate utilitarian tests of predictability and repeatability) has wonderfully minimized the self-medicating effects of our tortucan ruts. It has not flattened them out. The best of us may claim only to relatively shallow ones, not to being by nature rut free.

Since an idea worth having is one worth defending, the proper way to keep the tortucan hounds at bay is to expose them properly to the light of public reasoning, and we have quite an arsenal at our disposal to do it. On the scientific front evolution is an ideal litmus test to weed out a lot of tortucans up front. While Hank Hanegraaff pompously declares how in our "modern age of scientific enlightenment" it is impossible to believe in evolution, the plain fact is that exactly the opposite is true, and knowing which questions to ask of such people can cut to the chase very quickly in the tortucan-exposing department.

I've found the fossil intermediate issue handy, for antievolutionists are not merely bad at describing what they would accept as an ancestor for such-and-so an animal. They are literally *incapable* of thinking about it.

Another good entry question would be: "What technical journals do you read on a regular basis?" The honest antievolutionist will likely answer "none"—which then leads to the follow-up: "Where are you getting your antievolution information then?" Odds are they are simply repeating the claims of others, and have never got within a hundred miles of reading any of the relevant technical citations themselves. You can show that by one more question: "Did you ever check up on your sources to see if they were right?"

Tortucans don't play this sort of game very well.

But it also means *we* do have to play it well. And that means carefully documenting whatever claims we make, grounding our arguments whenever possible on the solid foundation of primary resources. That is where working together can be so powerful. No individual can hope to have read everything, but it is amazing what a collective system can do. After all, that is exactly what has made the scientific culture so reliably productive.

How does this apply to the religion issues we secularists are so concerned with? If religion has one foot planted in the realm of undecidable propositions, how are we to play that game? By the same "spot the tortucan" approach: find and ask the right

questions to put on display the very feature that the apologetic mind is usually so skilled at concealing. What is it they are *not* thinking about?

Religion is chock-a-block with them. "Don't you believe in God?" Einstein had a good response to that one: define "God" for me and I'll tell you whether I believe it. The lesson here: don't let religionists slip in their assumptions surreptitiously.

Another approach here uses mathematical logic. Though I came up with the idea on my own, unfortunately Bertrand Russell beat me to it: if you take all religions as doctrinal systems there are so many points of contradiction that there are only two alternatives to the question of which one of them could be true. Either one is, or none. Thus the Buddhist worldview cannot simultaneously be true if Jesus is also the incarnate Son of God the Father. Just as with Einstein's "define your terms" reply, forcing tortucans to explain why their version is the obviously superior one to be true will inevitably expose their propensity for double standards and selective use of evidence.

And should the tortucan apologist up the ante and demand, "If you don't believe in God, then what about morality?" Well, here again we have those dusty old philosophers treading the ground ahead of us. Plato pulled the rug out from under that one. The Platonic dilemma concerns from where God gets that morality. If "moral" means only what God tells you it is (and Plato was talking pre-Christian "God" here, so the issue is far more general than God of Abraham issues) then such a morality isn't necessarily "moral" at all. It's just divine command. In order for that morality to actually *be* moral it has to be so in terms of an *absolute* standard. The savvy Christian apologist will probably be nodding in agreement.

At which point you drop the axe: if the morality that God is affirming is true in that way then the truth of that absolute morality has to exist independently of God, otherwise it's just a command morality again. Now Plato found an escape valve here, which Christians can use too: namely that somehow or other God is inherently good and can't help but affirm the right thing. A perfectly legitimate dodge philosophically (an undecidable issue)—but it also leaves the barn door wide open for secular moralists to take up the absolute morality high ground themselves. For secular moralists only require one undecidable assumption (that an absolute morality exists) where the Christian requires *three*: that first one, *and* the existence of their God, *and* so defining its nature to end up on the good side.

This new brand of secular moralism is starting to gain some traction, incidentally, such as Dacey's *The Secular Conscience*, with roots spreading back though John Stuart Mill to the incendiary "Atheist Jew" Spinoza.

Approaching such issues with the recognition that your opponent is likely a tortucan, though, channels the logic onto an even tighter track whereby the point is always to demonstrate to *others* that the opponent is a tortucan.

Supposing your Christian apologist knows their game, they may be more than willing to pull a "Garrett Hardin" and impale themselves even farther by lunging in: "OK, smarty-pants, where are you getting your absolutely morality from? Isn't yours just the whim of man (sinful Fallen Man at that)?" Hardly. Both of us have lists of supposedly moral things. Mine is consciously reasoned out, and defended by conscience and consequence. Yours, by contrast, was one you nipped off ready made from a website—

a really old one, pre-computer as it happens. Both of us ought to defend the morality of our lists, shouldn't we?

My secular morality list, grounded on concepts of universal reciprocity and fairness (the "do unto others" thing), has slavery as a bad idea. Your biblical one doesn't have a problem with slavery though. How is that? Is slavery not actually *wrong*? Jump into Exodus chapter 21 to see what I mean. And then there's this witch-killing rule in Exodus 22:18? Oh yes, and those recurring acts of genocide, from Joshua 6:21 ("And they utterly destroyed all that *was* in the city, both man and woman, young and old, and ox, sheep, and ass, with the edge of the sword") to Numbers chapters 31 and 32 reporting how, after the defeat of the Midianites, Moses ordered all of their male children and non-virginal women killed (the 32,000 virgins were prudently retained as captives).

That's where it is handy not merely to have read the primary source, but having a Bible right there so you can consult the hardcover version of their pre-computer blog right on the spot, so that the tortucan side of their professed belief in an absolute morality can be explored at length.

Other religious traditions would need to be investigated with similar precision, which is why a collective enterprise of collating litmus test issues can be so productive. While tortucan hunting can be a strenuous contact sport, it is one I suggest not without its redeeming pleasures and larger social importance.

(At this point the lecture concludes and I moved on to the question period, which focused on a variety of specific instances of applying the model. Quite a few questioners were uncertain about my defense of a secular absolute morality, probably because they have been unused to thinking that such a thing could be possible from a non-theocratic framework.)

Sources and representative works by authors mentioned in the lecture:

Behe, Michael J. 1996. *Darwin's Black Box: The Biochemical Challenge to Evolution*. New York: The Free Press.

Clarke, Arthur C., ed. Ian T. Macauley. 1999. *Greetings, Carbon-Based Bipeds! Collected Essays, 1934-1998*. New York: St. Martin's Press.

Coulter, Ann. 2006. *Godless: The Church of Liberalism*. New York: Crown.

Collins, Francis. 2006. *The Language of God: A Scientist Presents Evidence for Belief*. New York: The Free Press.

Dacey, Austin. 2008. *The Secular Conscience: Why Belief Belongs in Public Life*. Amherst, NY: Prometheus Books.

Dawkins, Richard. 2006. *The God Delusion*. 2008 pb ed. Boston: Mariner Books.

Dembski, William A. 2002. *No Free Lunch: Why Specified Complexity Cannot Be Purchased without Intelligence*. Lanham, MD: Rowman & Littlefield Publishers, Inc.

Feynman, Richard P., with **Ralph Leighton**, ed. Edward Hutchings**.** 1985. *"Surely You're*

Joking, Mr. Feynman!" Adventures of a Curious Character. 1989 pb ed. New York: Bantam Books.

Gish, Duane T. 1995. *Evolution: The Fossils STILL Say NO!* Rev. ed. of 1985, *Evolution: The Challenge of the Fossil Record* (in turn rev. of 1978, *Evolution: The Fossils Say NO!*). El Cajon, CA: Institute for Creation Research.

Gould, Stephen Jay. 1999. *Rocks of Ages: Science and Religion in the Fullness of Life.* New York: The Library of Contemporary Thought (Ballantine).

Ham, Ken. 1998. *The Great Dinosaur Mystery SOLVED!* Green Forest, AR: Master Books.

Hanegraaff, Hank. 1997. *Counterfeit Revival*. Nashville, TN: Word Publishing.

Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* **162** (13 December): 1243-1248.

———. 1974. *Mandatory Motherhood: The True Meaning of "Right to Life."* Boston: Beacon Press.

Harris, Sam, Sameer A. Sheth, & **Mark S. Cohen.** 2008. "Functional Neuroimaging of Belief, Disbelief, and Uncertainty." *Annals of Neurology* **63** (February): 141-147.

Johnson, Phillip E. 1991. *Darwin on Trial*. Washington, D.C.: Regnery Gateway.

Milton, Richard. 1997. *Shattering the Myths of Darwinism*. Rev. ed. of orig. 1992 (Britain) *Facts of Life*. Rochester, VT: Park Street Press.

Ross, Hugh. 1995. *The Creator and the Cosmos: How the Greatest Scientific Discoveries of the Century Reveal God*. Rev. ed. Colorado Springs, CO: Navpress.

Russell, Bertrand, ed. Paul Edwards**.** 1957. *Why I Am Not a Christian and Other Essays on Religion and Related Subjects*. New York: Simon & Schuster.

Sagan, Carl. 1996. *The Demon-Haunted World: Science as a Candle in the Dark*. 1997 pb ed. New York: Ballantine Books.

Shermer, Michael. 2004. *The Science of Good and Evil: Why People Cheat, Gossip, Care, Share, and Follow the Golden Rule.* New York: Times Books (Henry Holt & Co.).

Von Däniken, Erich, trans. Michael Heron. 1970. *Chariots of the Gods? Unsolved Mysteries of the Past*. 1971 pb ed. New York: Bantam Books.

Wells, Jonathan. 2000. *Icons of Evolution: Science or Myth? Why Much of What We Teach About Evolution Is Wrong*. 2002 pb ed. Washington, D.C.: Regnery Publishing, Inc.