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## Design in nature

*J. Scott Turner*

**Rowan  
Williams**

*The gifted  
church*

**Meg E. Cox**

*The voter ID  
deception*

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Is there purpose in evolution?

# Signs of design

by J. Scott Turner

**B**ECAUSE I AM a biologist, evolution is at the core of virtually everything I think about. Like most of my colleagues, I've kept an eye on the emerging Intelligent Design movement. Unlike most of my colleagues, however, I don't see ID as a threat to biology, public education or the ideals of the republic. To the contrary, what worries me more is the way many of my colleagues have responded to the challenge.

ID proponents claim that Darwinism is insufficient to explain the origin and evolution of life on Earth. All is better explained, they say, if there is some kind of designing intelligence guiding things. These assertions are based on two core ideas. The first is essentially a scientific theory of miracles that is the brainchild of philosopher and mathematician William Dembski, one of ID's leading intellectual lights. According to Dembski, one can use rules of probability and information theory to construct "explanatory filters" that can objectively distinguish between purely natural phenomena that come about on their own and phenomena that require some kind of intelligent guidance—a miracle, in a word. Applying an explanatory filter to, say, the origin of life reveals that the probability that life arose by chance is infinitesimal. This in itself is not a particularly

novel or controversial idea—no biologist I know would disagree. But Dembski parts company with the rest of us when he insists that a designing intelligence is the only agency that could bring such an improbable event to pass. What heats people up, of course, is that Dembski's "designing intelligence" strikes many as code for "God."

The second core idea comes from the microbiologist Michael Behe, who is another of ID's leading lights. He asserts that living systems exhibit a sort of "irreducible complexity" that cannot be derived from the piecemeal evolution that Darwinism demands. The poster child for this argument is the bacterial flagellum, a whip-like device that bacteria use to propel themselves around their environments. This

remarkable contrivance, which resembles an electric motor, is built from protein parts, and will work only when all the parts are assembled into the complex whole—and this is why Behe calls its complexity irreducible.

**The notion that there is purpose in nature is hard to suppress—and the history of Darwinism shows why.**

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*J. Scott Turner is associate professor of biology at the SUNY College of Environmental Science and Forestry in Syracuse, New York. His latest book is *The Tinkerer's Accomplice: How Design Emerges from Life Itself* (Harvard University Press).*

Whether the flagellum actually *is* irreducibly complex is questionable: scientists have proposed reasonable models for how its design could have emerged via piecemeal evolution. Nevertheless, Behe considers irreducible complexity to be proof positive of a designing intelligence at work: how could the flagellum have developed by natural selection if none of those elements by themselves would have made the organism's predecessor more fit to survive? Behe claims that many other attributes of living systems, including the complicated structure of genomes, mechanisms for gene replication, and complex metabolic pathways in cells, are likewise irreducibly complex. What stirs the pot is ID's claim that all this irreducible complexity constitutes a rhetorical dagger pointed at the heart of Darwinism.

If this all sounds familiar, it should: it is essentially natural theology and the Argument from Design dressed up in modern clothes—William Paley equipped with a computer and electron microscope. Looked at in this way, ID seems not so much like the radical alternative to Darwinism that it claims it is, but more like nostalgia for the Platonic tradition in natural history that prevailed prior to Darwin. The nostalgia is puzzling: for centuries, the Platonic tradition tied natural history into knots, with some of the most intractable tangles woven around the nature of species and the meaning of the apparent design that abounds in the living world. In a single decisive stroke, Darwin cut a wide path out of this Platonic morass with a

simple and, most important, reasonable natural explanation for why species exist and why they exist in such marvelous diversity and complexity. To extend Richard Dawkins's famous quip that Darwin made it possible to be an intellectually fulfilled atheist, so too did Darwin make it difficult to be an intellectually credible Platonist.

Nevertheless, ID is as popular as it is controversial, and Platonic nostalgia is not enough to explain why. Something deeper is obviously at play.

To most people who contemplate the natural world, it seems self-evident that the world is a designed place. Despite its many difficulties, the Platonic tradition endured because it offered a satisfying explanation for why: the world reflects God's purposeful design for creation. In dethroning the Platonic tradition, Darwin seemed to take that purpose away, and this has obviously been a difficult pill for



many to swallow. It's not so clear, however, that Darwin did divorce design and purpose so decisively from the living world. Indeed, to claim that he did is to misread the history of Darwinism.

Consider, for example, the bedrock concept of Darwinian fitness. Natural selection operates because "fit" individuals are more fecund than "unfit" individuals. This should, over time, produce populations of fitter creatures, even though there is no purpose at work here, no striving for perfection. A problem lurks in this seemingly simple explanation, though. For a scientific idea to be

credible, there must at least be the possibility that one can show it to be incorrect. Darwin ran into early difficulty on this score because the conventional depiction of fitness cannot be false—fecundity is fitness, and fitness is fecundity. To Darwin’s early critics, a veritable fountain of doubt gushed from this tautology at the heart of his theory.

Edward Drinker Cope, the 19th-century American paleontologist, probably expressed the issue best. The problem is not so much the origin of species as it is the origin of *fitness*: how, precisely, do organisms become well-crafted—*fit*—things? To Cope, and to many of Darwin’s contemporary critics, the way out of the tautology was the very purposefulness that Darwin so adamantly insisted we reject.

Interestingly, Darwin himself was a little muddy on the issue. Asa Gray, the Harvard botanist who was Darwin’s most energetic advocate in the 19th-century U.S., actually saw in Darwinian adaptation the vindication of purposefulness in biology—to Darwin’s chagrin. Darwin’s most enthusiastic German convert, Ernst Haeckel, did Gray one better, crafting his own theory of evolution by melding Darwinian natural selection with the purposeful *Naturphilosophie* of romantics like Goethe, leaving Darwin not just exasperated but aghast.

One could argue that Gray and Haeckel simply failed to understand Darwin’s elegantly simple idea, but that argument doesn’t hold water. Alfred Russell Wallace, who independently conceived the idea of natural selection and whose thinking surely would be most closely aligned to Darwin’s own, thought that purpose in some form had to have guided the origin of life and the origin of consciousness in the higher animals, particularly humans. One finds similar doubts cropping up among thinkers throughout the late 19th and early 20th centuries—Freud,

Louis Agassiz, Carl Jung, Henri Bergson, to name a few—and all were concerned about Darwin’s insistence that a purposeless materialism is all there is.

To be fair, much of the ambiguity and unease that was swirling around during Darwinism’s early years was fueled by a lack of knowledge about how another core Darwinian concept, heredity, works. For a time, it was thought that we could resolve Cope’s question about how organisms came to be fit by clarifying the material nature of the gene, Mendel’s “atom of heredity.” That quest succeeded spectacularly, culminating in today’s remarkable revolution in molecular biology, and engendering along the way our modern answer to Cope’s question: the gene-centered conception of Darwinism—Neo-Darwinism as it is called—in which fitness arises by way of the selection of “good function genes” at the expense of “poor function genes.”

For a time, Neo-Darwinism triumphantly swept away quaint notions of purposeful evolution, to the point where Will Provine, the eminent Darwin historian, could confidently say that there are “no designing agents in evolution.” That confident pronouncement may have been premature, however. As we discover more about how genes work, the stranger they become, far from the simple specifiers of “good function” they were classically thought to be. Paradoxically, this has breathed new life into Cope’s question, making it more acute, not less so. Indeed, my own scientific work has led me to a conclusion precisely the opposite of Will Provine’s: designing agents are in fact everywhere, if only you know how to spot them. The ubiquity of these designing agents may make evolution a far more purposeful phenomenon than Neo-Darwinism has been willing to allow.

This puts Intelligent Design into what I believe is its proper perspective: it is one of many emerging critiques of materialism in science and evolution. Unfortunately, many scientists fail to see this, preferring the gross caricature that ID is simply “stealth creationism.” This is a failed strategy to meet the challenge, however. Rather than simply lament, as many scientists do, that so many people take ID seriously, the better question is to ask *why* so many take it seriously. We tend not to do that, however, because the answer would be hard to bear: ID is popular, not because the stupid or ignorant like it, but because Neo-Darwinism’s principled banishment of purpose seems less defensible with each passing day.

A more constructive response to the ID challenge would ask whether ID is a *credible* critique of Darwinian materialism. In my opinion, that judgment should turn on one simple criterion: will ID pose testable answers to Cope’s question? By this measure, a fair reading of ID’s prospects shows that it is in the game, though it has stepped up to the plate with two self-inflicted strikes against it. The first strike is its philosophical commitment to the Argument from Design and to the Platonic Intelligent Designer it implies. The second strike is that the testable ideas it has produced, like Behe’s irreducible complexity, have not so far measured up. Whether ID gets a third strike will turn on whether it can come up with a credible and scientific theory of purposeful evolution. Most, including me, doubt that it will be able to, but scientists of all people should know that the world is full of surprising things. ID might surprise us still.

It seems less than sporting, then, to call the pitch while it’s still in the air, which is precisely what many of my colleagues insist on doing, sometimes quite vehemently. This,

to me, is the most problematic thing about the controversy: it’s not ID that keeps me awake at nights, but the tactics and attitudes of certain colleagues who really should know better. In Pogo’s immortal words, “we have met the enemy and he is us.”

One doesn’t have to look far to find examples of Conduct Unbecoming. There is the recent case of Richard Sternberg, an unpaid staffer at the National Museum of Natural History (part of the Smithsonian), who became the object of a malicious campaign to oust him from the museum. Sternberg’s crime? As managing editor of a Smithsonian-affiliated journal, he decided to publish an article that was sympathetic to ID, on the seemingly reasonable grounds that a scientific journal is the appropriate venue for an advocate of a controversial theory to state his case. The Justice Department rapped the museum’s knuckles for its treatment of Sternberg.

It would be comforting if one could dismiss such incidents as the actions of a misguided few. In fact, the intolerance that gave rise to the Sternberg debacle is all too common: you can see it in its unfiltered glory by taking a stroll over to web sites like [pandasthumb.org](http://pandasthumb.org) or [recursed.blogspot.com](http://recursed.blogspot.com) and following a few of the threads on ID. The attitudes on display there, which at the extreme verge into antireligious hysteria, can hardly be squared with the relatively innocuous (even if wrong-headed) ideas that sit at ID’s core. Why, then, are such attitudes commonplace? The only explanation I can come up with is that many biologists regard ID as if it were a dire existential threat. And that is what really troubles me about the ID controversy: it’s the animal that feels threatened that is the most likely to do something irrational and destructive.

Consider, for example, the most emotive issue related to ID—whether it has any place in our classrooms. One can render plausible arguments that it does: even if ID is wrong, students are interested in the issue, and it offers a wealth of teachable moments to explore deeper issues of the philosophical roots of biology and the nature of science. What, then, is the harm in allowing teachers to deal with the subject as each sees fit? Advance this seemingly reasonable proposition, and you are likely to see scientists rolling their eyes; some may even become apoplectic.

When pressed to explain why normal standards of tolerance and academic freedom should not apply in the case of ID, scientists typically reply with all manner of evasions and prevarications that are quite out of character for otherwise balanced, intelligent and reasonable people. To give just one argument that has turned up frequently in my correspondence with colleagues: because ID has its roots in fundamentalist Christianity (a dubious proposition in itself), admitting it into our classrooms will foster an exclusionary and hurtful climate, just as admitting other exclusionary sins as racism or sexism would. Even setting aside the numerous head-turning *non-sequiturs* that weave through this argument, a stroll through most modern universities will quickly reveal how hollow the argument is. Each day as I make my way to my office, for example, I pass the usual gauntlet of Bushitler cartoons and “Duck, it’s Dick” posters, and doors plastered with lame jokes and cartoons about Republicans, Christians and conservatives. “Abortion Stops a Beating Heart” posters, on the other hand, are as rare as four-leaf clovers. The display is a stark panorama of what the modern academy is evolving into: a tedious intellectual

monoculture where conformity and not contention is the norm. Reflexive hostility to ID is largely cut from that cloth: it is not so much a hurtful climate that worries some ID critics, but a climate where people are free to disagree with them.

Such things are easily laughed off as the foibles of the modern academy. My blood chills, however, when these essentially harmless hypocrisies are joined with the all-American tradition of litigiousness, for it is in the hands of courts and lawyers that real damage to cherished academic ideals is likely to be done. This is not mere lawyer-bashing: as universities become more corporatized and politicized, academic freedom and open inquiry are coming under an ever more grave threat. A case in point is the recent federal court decision in *Mayer v. Monroe County Community School Corporation*, which essentially dismisses the notion of academic freedom in high schools. The court found that teachers have no academic autonomy but are only instruments for advancing the interests of school boards.

My university colleagues should not take much comfort in the fact that this decision involved a high school, because it would require only a short step to apply the same logic to them—a step that some administrators are eager to take. A high-level administrator at the prestigious university next door to my own has gone on record saying that First Amendment rights of free speech do not apply at an “educational corporation” like a private university. We should take heed: courts, ambitious attorneys and lawsuit-averse administrators are manifestly not academics’ friends when it comes to unfettered free speech. Yet the courts are where many of my colleagues seem determined to go with the ID issue. I believe we will ultimately come to regret this.

Take, for example, the recent case in Dover, Pennsylvania, where a group of parents sued the local school board over its requirement that a statement be read to biology students encouraging them to keep an open mind about alternatives to Darwinism. The plaintiffs regarded this requirement as “stealth creationism” – an unanswerable criticism if you think about it – and, backed by the ACLU, they sought relief in the federal courts. There were few heroes to be found in the spectacle that followed. The only bright spot was when a larger group of grown-ups, the Dover electorate, put a stop to the circus by voting out the school board that had put the offending policy in place. Unfortunately, this happy outcome did not keep the judge from ruling with the plaintiffs, decreeing that teaching about ID is constitutionally proscribed.

Many of my scientific colleagues were involved in this case. One would hope that they would have struck a stance of principled neutrality, offering a robust defense of academic freedom tempered with the sober recognition that freedom means that sometimes people will think, speak and even teach things one disagrees with. Instead, my colleagues took sides; many were actively involved as advocates for the plaintiffs, and they were cheered on by many more from the sidelines. Although there was general jubilation at the ruling, I think the joy will be short-lived, for we have affirmed the principle that a federal judge, not scientists or teachers, can dictate what is and what is not science, and what may or may not be taught in a classroom. Forgive me if I do not feel more free.

Note: this is a reformatted version of the article as it appeared in print in *The Christian Century*. There are minor differences in layout from the print version.

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# THE Christian Century

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## Nature's God

June 12, 2007

The notion of intelligent design in nature is not controversial among Christians. "The heavens proclaim the glory of God," the psalmist exclaims, and worshippers regularly confess their belief in God "the Almighty Creator of heaven and earth." St. Augustine believed he saw "vestiges of the Trinity" in the created order—in the way love is always a threefold reality (involving the lover, the beloved and the love between them). Ask Christians where they most vividly experience God and the answer will oftgen be a variant of "nature." Most Christians know what Schleiermacher meant when he spoke about the natural attitude of "reverence before the All."

What is controversial is the scientific teaching of intelligent design, a subject explored both sympathetically and critically by J. Scott Turner in this issue. Proponents of ID claim that Darwin's theory of evolution cannot explain natural phenomena that exhibit "irreducible complexity." They argue that the hypothesis of an "intelligent designer" best fits the evidence.

It is the placement of this teaching in science classrooms that most worries ID's opponents, both inside and outside the church. Some politicians have called for "teaching the controversy" between Darwin and ID, and some local school boards have mandated doing this. But courts have struck down the mandatory teaching of ID, judging that ID is based on religion and that mandatory instruction therefore violates the First Amendment.

ID may be linked to religious beliefs, but the designer envisioned in ID theory is not the Christian God or even necessarily a single deity. Proponents of intelligent design are not talking about the triune God, signs of whom Augustine sought in creation, nor are they talking about the God who became incarnate, born of Mary. It is a vague sort of *dues ex machine* who comes to fill the holes in Darwinian theory. ID's "God of the gaps" approach has often floundered when the gaps are filled by scientific advances. This approach leads to wretched science, and its impact on theology is even worse.

Whether ID can ever be a scientific program remains doubtful, though as Turner points out, the concepts of design and purpose cannot be entirely excluded from scientific study, even by Darwinians. It is difficult to speak of nature at all without some attention to words with theological freight, like *design*, *beauty*, and *order*. Scientists often praise theories for their "elegance"—such theories explain phenomena not only truly, but beautifully. And clearly "reverence before the All" is often evoked in observation of the cosmos, or of microorganisms, or even of chemical reactions. Students may raise questions that verge on the religious, and science teachers may be drawn to answer them, without any laws being broken.

The danger would come with making these questions mandatory through writing them into curricula. Many people, not just religious believers, would object to placing teachers in the role of religious instructors. The crucial point for Christians is that the Christian discussion of creation ultimately takes place within an article of faith. "I believe," the first words of the Apostles' Creed, puts its affirmation in the realm of faith, not biology. ■

*By the Editors*

Intelligent design's "God of the gaps" is not the triune God of Christianity.

## *Intelligent Design again*

These letters were published in the September 4, 2007 edition of *The Christian Century*. I am reproducing them here, along with my unedited response to the letters, which, for reasons of space, was considerably shortened by the editors. In my opinion, the edited version did not adequately the thrust of my response, which elaborated on the issue of academic freedom and the impact of the Dover case on it.

JST

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I find it unsurprising that many people find purpose in nature (J. Scott Turner, "Signs of Design," June 12). I also find it unsurprising that most scientists find this an unimportant part of science.

A fairly new science, complexity theory, has been turning out papers relevant to biological complexity for more than a couple of decades. Consider a warm blooded animal. You might notice it maintaining a constant temperature even though the surrounding temperature varies. You might suppose maintaining a constant temperature is purposeful. But if you examined the details of response to external variations, you could notice a certain time lag in the response, a hunt cycle, suggesting a feedback loop. The feedback loop has a causal explanation whereas purpose is teleological, seeking a future goal. One could even build up several steps of 'explanation' based on purpose but this ultimately requires a god-like knowledge of future events. The scientist has access only to past behavior but can build a complete description through repeated experiment. He or she is thus confined to causal explanation.

I don't understand your defense of teaching ID in high school on the basis of

academic freedom. I have always thought the latter was only for professors or teachers and not students. Shouldn't the argument about what to teach be based on pedagogy: what best helps the student? Teleological thinking is just not helpful in physics.

As a Christian I believe the universe was made, designed, if you will. My belief doesn't make it so; this could be said to lie in the context of faith. It does seem historically true that many scientists, including Newton, made use of this context. Should this have any necessary influence on causal explanation?

Jim Langworthy  
Silver Spring, MD

Toward the end of the Introduction in *The Origin of Species*, Charles Darwin presented the following scenario: Excess births (Malthus) leads to intraspecific competition leads to the survival of just those well-equipped by nature to win in this competition; this process (of "natural selection") continuing over time results in the "survival trait(s)" increasing (or decreasing) in a slow, steady, progressive fashion from year to year. (Admittedly, however, Darwin did not stick to that definition in *Origin*.)

My quarrel with the teaching of evolution is that it fails to teach the facts that (1) there are many other possible selection scenarios, (2) contrary to what most seem to believe regarding *Origin*, natural selection is a monotypic, rather than polytypic, theory (i.e., it explains change in *one* species, rather than the emergence of new ones, as Darwin's "tree" diagram suggests, (3) natural selection is a minor phenomenon in nature--especially with "higher" species.

Turner is correct in noting that many scientists react irrationally to ID; I would simply add that they also so react to criticisms of the natural selection theory, so infatuated do

they seem to be with it, and the "holy writ" *Origin*.

Alton C. Thompson  
Greendale, Wisconsin

While I am willing to agree with J. Scott Turner that Intelligent Design is not "stealth creationism," ID also is not science. Turner correctly identifies ID as raising issues of "the philosophical roots of biology and the nature of science." As such, ID is a topic for discussion in a philosophy or history of science class, but not in a science class as a "scientific" alternative to neo-Darwinian biology.

Science, by its very nature, asks the question "How?" not the question "Why?" At the Intelligent Design (ID) school trial in Dover, Dr. Kenneth Miller said, "The exclusion of the supernatural is unavoidable and correct, a kind of methodological guardrail to keep science from driving off a cliff." Modern science attaches great importance to sticking with natural explanations, all of which can be tested. The assertion of an "intelligent designer" can explain any finding, because, ultimately, the "designer" can do anything. But if a proposition cannot be falsified, it is not scientific.

Turner writes, "Many of my scientific colleagues were involved in the school trial at Dover... My colleagues took sides; many [actually a very large majority] were actively involved as advocates for the plaintiffs, and they were cheered on by many more from the sidelines." He fails to mention that a number of the plaintiffs' advocates were, at the same time, strong Christians. Miller, a Catholic layman who teaches at Brown University and has written the most widely used high school biology textbook, was the key witness for the plaintiffs. Dr. John Haught, Catholic

theologian at Georgetown University, testified and painted ID as a purely religious proposition.

Patrick M. Magee  
San Jose CA

J. Scott Turner reacts to the problem of having a judge determine what science is and the repercussions of this judgment for academic freedom. I share these concerns. However, I cannot couple them to even a partial justification of Intelligent Design. The evidence at the Dover trial was conclusive that the recommended book, *Of Pandas and People*, began as a young earth creationist work. The original creationist language was simply altered to ID terminology in the final text. Since Judge Jones was explicitly requested to determine whether ID is science, his ruling on science could hardly have been avoided. The Lutheran jurist is not an activist, as charged by those who did not like the decision.

All who believe in a Creator believe in intelligent design. How does this differ from Intelligent Design as promoted by the Design Institute? The former recognize that creation is a philosophical and theological notion, normally with *Deus absconditus*. The latter insist that they can detect design by the application of scientific method. At the trial, ID-advocate Michael Behe recognized that this requires a recharacterization of the scientific method, so that astrology is a science. Such alteration of usage began with the originator of ID, Phillip Johnson, in *Darwin on Trial* (1991). He consistently insists that methodological naturalism, the search for causes in natural phenomena, is equivalent to metaphysical naturalism, the dogma that only nature exists. If Johnson is right, then almost every scientist who claims to be a theist is actually an atheist. Members of Design Institute, Institute for Creation Research, Answers in Genesis, and

related groups are the only ones not self-contradictory.

*David F. Siemens, Jr.  
Mesa, AZ*

Turner's article is a knowledgeable and thoughtful examination of many of the philosophical issues at the heart of the debate over ID, intelligent design. But its weak spot—on practical issues—is revealed when Turner asks, “What...is the harm in allowing teachers to deal with the subject as each sees fit?”

The practical reality is that a significant number of biology teachers in U.S.'s middle-schools and high-schools still teach biology without using the “e” word, evolution. Some teachers use the ruse of teaching slowly enough so that they don't reach their textbook's final section on evolution before the school year ends. Such teachers do not enjoy Professor Turner's privilege as a college professor of doing biology, as he puts it, with “evolution...at the core of virtually everything I think about.”

*Bruce Yaeger  
Houston, TX*

One shortcoming of Turner's article is the insistence on using the term “Darwinism.” Charles Darwin was trained originally to be an Anglican country vicar, so he had an understanding of basic Christianity, even if this may only have been intellectual. His concept of natural selection was true genius in that it explained observable facts in a simple, precise manner. He lacked knowledge of genetics and biochemistry because the technology for studying these had not been developed.

The adamant supporters of Intelligent Design primarily continue to attack Darwin

and his work which was published almost 150 years ago. They fail to recognize the research and knowledge gained since that time. Much of our understanding of biological phenomena from morning sickness to the resurgent strains of tuberculosis (June 2007's scare du jour) is best explained in terms of evolution.

ID advocates are dishonest when they refuse to identify the “designer” as their understanding of God. ID fails as science because it relies on persistent intervention. There is no framework of understanding or predictability, only capriciousness.

While ID fails as a scientific theory, it fails even worse as a statement of theology. In trying to present a “science” based on literal English translation of the Bible they reduce God to a poor imitation of a human watchmaker who cannot get it right.

Evolution is more in line with Deuteronomy 6:4 - 5 as it allows reverence for God as expressed by Archbishop Frederick Temple when he said “God doesn't just make the world, he does something even more wonderful, He makes the world make itself.” The United Church of Canada reinforces this point of view with creedal statement “We believe in God who has created and is creating...”

*Thomas C. Brayshaw  
Fredericksburg, Texas*

When I was nine years old, I was rushed to the hospital so they could take out my appendix before it ruptured and threatened to take my life. I've not missed the silly little thing all these years, and I'm now 77. Same goes for my tonsils, haven't missed them either. A close friend was recently rushed to the hospital where they took out his gall bladder, I'm sure he will not miss that. And, I've been dealing with an enlarged prostate gland for a while, I could really get along nicely without that thing.

So where does the “intelligent” come in Intelligent Design?”

*William R. Phillippe  
Alexandria, VA*

Intelligent design ...

Turner would better understand the legal and cultural climate in public education if he read some of the ID work by California attorney Phillip Johnson (Darwin on Trial, Reason in the Balance). Johnson is much respected by both Dembski and Behe, and has argued that the Supreme Court rulings have given atheism free reign as “an alternative religion” in our public schools.

*Barry H. Downing  
Endwell, N.Y.*

Turner's article would seem to qualify as manipulative rhetoric.

We see this in Turner's arrogant dismissal of the Dover court case. ID's proponents engaged in lying to further a program to manipulate truth in favor of a particular, simplistic theological ideology. Turner claims we have “...affirmed the principle that the federal judge, not scientists or teachers, can dictate what is and what is not science, and what may not be taught in a classroom.” This is not the finding of, or outcome of the Dover case.

There is a well-documented, deliberate program to mislead the general public with claims like, “Evolution is just a theory.” Such truth-twisting, simplistic slogans reappear in disparate venues all over the country, repeated in local communities (school boards, public lectures in small high schools, etc.) before a general public that is not prepared to draw significant conclusions about science, and who seek the comfort of simplicity. Unsupported concepts are hypotheses; theories are

concepts that have survived the tests of scientific challenge, data capture, peer review, ageing and ever-more-careful definition. We find no challenges from the ID proponents to the Theory of Relativity or to Quantum Theory.

There is no “conflict” between “science” and “Intelligent Design.” The two labels represent such different worlds as to be not comparable. At issue is the level of ethics among the leading proponents. Could you set up a “disagreement” or “intellectual conflict” between an argument for the existence of elephants and an argument for the existence of Marxist communists?

I cannot believe Turner doesn't know what he was doing.

*David W. Self  
Murphys, Ca.*

Let us pretend that a reporter receives the following assignment from his editor: “Find a more complete story of creation, using all the information you can find.” The reporter applies the usual criteria for a story: who, what, when, where, why and how.

Who? Science has documented much, but nowhere does it say who did the creating; primarily because science requires proof. So we turn to the priestly account in Genesis. The first sentence says it all. In the beginning God created. That is who.

What? If God is the creator, he must have created not only the biblical heavens and earth, but everything else we know about today and a lot more.

When? The Bible stories state six days, less than 10,000 years ago. Science requires some billions of years. Give God plenty of time. I'll go with science on when.

Where? Modern science considers a larger “where” than the known “where” of 3,000 years ago. As a matter of interest, I have seen a description of the universe which shows our universe as a bubble on the edge of some other

universe. In other words, we may have started out as a black hole bursting forth from some other universe. Again: Whatever and wherever was and is—that is what God has created and is creating.

Why? Science only explains why from one step to the next. Theologians are working on that one. I leave why for someone else to answer.

How? The Bible is not absolutely wrong on this one, but the story does not go into detail. God just said, “Let it be so,” and it was so. But we can turn to science to explain as far as we know how God did it, step by step.

Simplified: Who: God. What: everything. When: over billions of years. Where: everywhere. Why: to be answered. How: by evolution as refined by new discovery.

*Elmer L. Baxter  
Dirigo Pines, Me.*

**Scott Turner replies:**

I thank the authors of these letters for their thoughts in responding to my article, which raised many interesting issues related to academic freedom (Messrs Langworthy, Magee, Siemens and Self), the status of ID as science, religion or philosophy (Messrs Langworthy, Siemens, Magee, Downing, Self and Baxter), and the general relationship between science and religious faith (Messrs Langworthy, Magee, Brayshaw and Baxter).

Academic freedom is a widely misunderstood concept. Most people probably believe, as I once did, and as Messrs Langworthy and Yaeger apparently do, that academics enjoy a virtually unlimited right to free expression. As citizens, we certainly do, but as *academics*, the guarantee is far flimsier, because the First Amendment does not protect

academic “speech.” Whether they are high schools or colleges or universities, institutions of learning are not simply venues for education and enlightenment. Rather, they comprise multiple constituencies—faculty, students, alumni, trustees, taxpayers, and benefactors—each with particular rights and expectations. In the case of high schools (and to a lesser extent colleges and universities), institutions of learning are also the *de facto* educational guardians of peoples’ children, which throws another constituency into the mix—parents—who have their own powerful rights to assert. In an ideal world, the interests and rights of all these constituencies cohere. In the real world, they often do not, and when that happens, teachers and professors often find that their claims to freedom of expression *as faculty* are dismayingly weak.

This is why, contrary to what most people think, academic freedom was not the issue in the Dover case: very early on, all parties realized that pitting the Dover Board’s rights to set a curriculum against the teachers’ rights to teach as they saw fit would probably end in defeat for the teachers. Rather, the issue in Dover was whether the Board’s policy had a sectarian religious intent. The irony in Dover was that the Plaintiffs did not need to address the scientific or religious status of ID at all to win their case, because there was clear religious intent in various statements and actions of certain members of the Dover Board. The problem in Dover was that the plaintiffs’ lawyers nevertheless went beyond what they needed to win their case to build a spurious equivalence between Scientific Creationism (which is clearly sectarian) and Intelligent Design (which is relatively cosmopolitan). The tragedy in Dover was that the freedom of teachers and boards to educate children as they saw fit was judicially constrained. That was the direct effect of Dover on academic freedom.

Dover also exemplified a subtler threat to academic freedom. The hard truth about academic freedom is this: it is not an inalienable right, but a venerable tradition. That tradition is sustained by a carefully-crafted bargain between the multiple stakeholders in the “knowledge enterprise.” That bargain invests our academics with an awesome responsibility—the stewardship of the intellectual, cultural, and moral legacy of our civilization. When the bargain works, we academics have what truly is remarkable freedom to tend that legacy as we see fit. But it comes unraveled if society judges that we are not being effective stewards of that legacy. That bargain has been looking increasingly frayed these days. What we witnessed in Dover was the bargain coming spectacularly undone.

Defending academic freedom therefore means repairing the bargain that sustains it. My worry is that the Dover case did nothing to stitch the bargain back together, and may even have frayed it more. I simply remain unpersuaded that the bargain can be repaired by litigating away inconvenient ideas like Intelligent Design.

Nevertheless, that has been the strategy followed by “my” side virtually since the Scopes trial, and it has been a demonstrable failure. To illustrate why, let us take at face value the critics’ claims that “Intelligent Design” is simply a cynical political maneuver to evade judicial prohibitions against teaching “Creation Science.” Twenty-five years ago, the critics’ claims were remarkably similar: “Creation Science” was merely a cynical political maneuver around judicial bans against mandates for “Equal Time” for evolutionism and creationism. And so on and so on. After several rounds of this,

stretching back more than eighty years, one is entitled to ask: who keeps feeding this beast? Unfortunately, “my” side tends to lapse into the easy bromide that it is fed by perfidy and ignorance of people who simply have a contrary point of view, as Mr Self argues. The hard truth is that *we* are feeding the beast, and to the same futile end: the Dover case accomplished little but to set up the pins again for the next frame. Maybe it’s time for a different approach?

But what different approach? Frankly, I don’t know. I believe, however, that the problem is rooted in the dense legal thicket that has grown up around Jefferson’s “wall of separation” ever since the Supreme Court ruled in 1947 that strict “separation of church and state” was the proper way to read the First Amendment. Fair enough: let the legal scholars thrash out that one. In education, this doctrine has translated somehow into the idea that a strict “wall of separation” can be erected between “science” over *here* and “philosophy” or “religion” over *there*. In this world, problems are avoided as long as the two are kept separate, as Mr Magee suggested. This approach presumes, of course, that one can in fact draw a clear boundary between the realms without doing damage to either.

In the case of evolution, I doubt that’s possible. The evolution of life is certainly a well-substantiated scientific fact. Darwinism is certainly a well-established scientific principle to explain that fact. But evolutionism in general and Darwinism in particular are just as certainly profound philosophical assertions about nature and our place in it. Indeed, it is precisely these philosophical issues about their own origins that pique students’ interests and gets them excited about evolution. If my words don’t persuade, I recommend the experience of 8<sup>th</sup> grade science teacher Jill Gonzalez-Bravo as it is recounted in Edward Humes’ excellent

book *Monkey Girl* (2007, Harper-Collins). I think it is neither practical, nor is it good pedagogy to impose upon this topic a regime of academic *apartheid*, as Lynn Margulis has provocatively phrased it. Unfortunately, the brambles on biology's little patch of the wall of separation have grown so thick and thorny that most teachers, rather than treat evolution and Darwinism thoroughly, choose instead the prudent course of giving it short shrift or avoiding it altogether, as Mr Yaeger rightly laments. Perhaps evolution might be taught better if we cleared away the thicket a bit?

But how to clear it away? Again, I don't know. It would seem, however, that the thicket has been allowed to grow largely because we have subscribed for some time to the theory that good fences make good neighbors. Fair enough: there's truth in that. However, getting to know the neighbors is another route to cordiality, which might entail less expense and bother than building those ever higher and more elaborate fences, and might even enrich us all. Paradoxically, evolution actually provides a common ground where cordiality *could* prevail over strife, because all the "neighbors" are motivated by the same basic question: what is the origin and the meaning of the living world's self-evident design? This commonality is why, as Mr Brayshaw notes, Charles Darwin's career could veer abruptly from prospective Anglican vicar to avatar of evolution: his question didn't change; only (!) his answer did.

Unfortunately, Darwin's answer marked the beginning of the fence that divides us today (even though that was not really Darwin's intent: he wrote that going public with his theory was like "confessing murder"). If one is in a dispassionate mood,

one can regard ID, whether one believes it is science, religion or philosophy, as an attempt to bridge that fence. Kenneth Miller's "Deistic Darwinism", helpfully pointed out by Mr Magee, is another (although I have to confess I have a hard time parsing the difference between the two). If one is in a charitable mood, one could even construe the Dover Boards' actions as an attempt to bridge the fence, even though the actors (and the substantial part of the community that put them there) were imperfect, their motives were inchoate, and their methods were clumsy and in some instances verged into outright dishonesty (like lying under oath).

We scientists, by and large, have been reluctant to join the party, presumably because we see little point in it: why bother to get to know the strange neighbors down the block when we are enjoying such a stunning run of success all on our own? Can this state of affairs go on forever, though? Perhaps, but perhaps not: Stuart Kauffman (a pioneer in Complexity Theory, mentioned by Mr Langworthy) and others suggest that modern science may be coming to the limits of its confident philosophical underpinnings. If science is to survive (which I dearly hope it does), we may have to be open-minded about the strong dichotomy between the material and non-material worlds that supposedly differentiates science from everything else (is a thought a thing?). Similarly, evolutionary biology is neither finished product nor holy writ (as Mr Thompson colorfully put it), and Darwinism, like any other scientific idea, owns no guarantee that it will *always* be the best explanation for the really big questions. ID, for all its deeply flawed pretensions to have a better answer, is at least asking some radical questions about the foundations of evolutionary biology. There's nothing wrong

with asking them and there's no danger in listening to them.

Finally, let me congratulate Mr Phillippe on his long and healthy life, despite having had various parts of his body pared away over his many years. Surviving without a particular part does not mean that part is useless, however. The tonsils and the appendix that no longer sit in Mr Phillippe's body were part of a larger immune system that has built into it many interlocking layers of redundancy and flexibility. Whatever germs his tonsils and appendix are no longer there to catch have obviously been caught by some other component of his immune system. Whether that is intelligent design or not, it certainly is lucky! May his luck continue for many more years.

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