

# Darwinism and Truth

## Darwinism and the Fact/Value Split

Nancy Pearcey writes in her book *Total Truth* that Christians must counter the effects of our secular culture and mindset by developing a consistent and comprehensive biblical worldview.[{1}](#) In the middle chapters of her book, she demonstrates how Christians should do this with the question of origins.

Earlier in her book she notes that our society has divided truth into two categories. She calls this the sacred /secular split or the private/public split or the fact/value split. They are different ways of saying the same thing. Religion and moral values are subjective and shoved into the upper story where private opinions and values reside. And in the lower story are hard, verifiable facts and scientific knowledge.

There is another key point to this split. The two spheres should not intersect. In other words, it would be bad manners and a violation of logic to allow your personal and private choices and values to intersect with your public life. As the popular saying goes, that would be “shoving your religion down someone’s throat.”

Ray Bohlin’s [review](#) of Pearcey’s book provides further explanation for how this idea plays out in society.[{2}](#)

Darwinists accept this split and have even tried to convince Christians that in this way religion is safe from the claims and conclusions of Darwinian evolution. But a brief glance at the best seller list shows that evolutionists regularly invade this upper story of values with their harsh criticism.

In *The God Delusion*, Richard Dawkins says that religious belief is psychotic, and arguments for the existence of God

are nonsense. Sam Harris echoes that sentiment in his bestselling book, *Letter to a Christian Nation*. Daniel Dennett, in his book *Breaking the Spell*, believes that religion must be subjected to scientific evaluation.

Nancy Pearcey shows that Darwinism leads to naturalism. And this is a naturalistic view of knowledge where “theological dogmas and philosophical absolutes were at worst totally fraudulent and at best merely symbolic of deep human aspirations.”<sup>{3}</sup> In other words, if Darwinian evolution is true, then religion and philosophical absolutes are not true. Truth, honesty, integrity, morality are not true but actually fraudulent concepts and ideas. If we hold to them at all, they were merely symbolic but not really true in any sense.

Daniel Dennett, in his book *Darwin’s Dangerous Idea*, says that Darwinism is a “universal acid” which is his allusion to a children’s riddle about an acid that is so corrosive that it eats through everything including the flask that holds it. In other words, Darwinism is too corrosive to be contained. It eats through every academic field of study and destroys ethics, morality, truth, and absolutes. When it is finished, Darwinism “eats through just about every traditional concept and leaves in its wake a revolutionized world-view.”<sup>{4}</sup>

## **Darwinism and Naturalism**

Pearcey writes that “Darwinism functions as the scientific support for an overarching naturalistic worldview.”<sup>{5}</sup> Today scientists usually assume that scientific investigation requires naturalism. But that was not always the case.

When the scientific revolution began (and for the next three hundred years), science and Christianity were considered to be compatible with one another. In fact, most scientists had some form of Christian faith, and they perceived the world of diversity and complexity through a theistic framework. Pearcey

points out that Copernicus, Galileo, Kepler, Newton, and others sought to understand the world and use their gifts to honor God and serve humanity.

By the nineteenth century, secular trends began to change their perspective. This culminated with the publication of *The Origin of Species* by Charles Darwin. His theory of evolution provided the needed foundation for naturalism to explain the world without God. From that point on, social commentators began to talk about the “war between science and religion.”

By the twentieth century, G. K. Chesterton was warning that Darwinian evolution and naturalism was becoming the dominant “creed” in education and the other public arenas of Western culture. He said it “began with Evolution and has ended in Eugenics.” Ultimately, it “is really our established Church.”[\[6\]](#)

Today, it is easy to see how scientists believe that naturalism and science are essentially the same thing. They often slip from physics to metaphysics. In other words, they leave the boundaries of science and begin to make philosophical statements about the nature of the universe. While scientists can tell us how the universe operates, they cannot tell us if there is anything outside of the universe.

But that didn’t stop astronomer Carl Sagan in the PBS program “Cosmos.” The first words you hear from him are: “The Cosmos is all that is or ever was or ever will be.”[\[7\]](#) In other words, the universe (or Cosmos) is all there is: no God, no heaven.

Now, Carl Sagan’s comment is not a scientific statement. It’s a philosophical statement. And it set the ground rules for the rest of the program. Nature is all there is. In many ways it sounds like a creed. It is as if Carl Sagan was attempting to modify the *Gloria Patri*: “As it was in the beginning, is now, and ever will be.”

Do those ideas end up in our children's books? Nancy Pearcey tells the story of picking up a science book for her son, *The Bears' Nature Guide*, which featured the Berenstain Bears. The Bear family goes on a nature walk. Turn a few pages in the book and you will see a sunrise with these words in capital letters: "Nature . . . is all that IS, or WAS, or EVER WILL BE!"[\[8\]](#) Sounds like a heavy dose of Carl Sagan's naturalism packaged for young children courtesy of the Berenstain Bears.

If you are looking for a resource to counter this Darwinian and naturalistic indoctrination, let me recommend Probe's DVD series on "Redeeming Darwin." It will give you the intellectual ammunition you need.

In *Total Truth*, Nancy Pearcey discusses many of the so-called "icons of evolution" that Jonathan Wells documents in his book by that title.[\[9\]](#) These examples show up in nearly every high school and college biology textbook. But these examples which are used to "prove" evolution are either fraudulent or fail to prove evolution.

Let's start with a piece of evidence for evolution that was found where Charles Darwin first got his inspiration for his theory of evolution: the [Galapagos Islands](#). The islands can be found off the coast of South America. On those islands are finches, which have come to be known as Darwin's finches. It's hard to find a biology textbook that doesn't tell the story of these finches.

One study found that during a period of drought, the average beak size of these finches increased slightly. The reason cited for this is that during these dry periods, the most available seeds are larger and tougher to crack than at other times. So birds with larger beaks do better in conditions of drought.

I spent an afternoon looking at specimens of Darwin's finches when I was in graduate school at Yale University and should

point out that the changes in beak thickness is minimal and thus measured in tens of millimeters (thickness of a thumbnail). Moreover, the changes seem to be cyclical. When the rains returns, the original size seeds appear and the average beak size returns to normal.

This is not evolution. It is an interesting cyclical pattern in natural history. But it's not evolution. Nevertheless, one science writer enthusiastically proclaimed that this is evolution happening "before [our] very eyes."[\[10\]](#)

If this is evolution occurring then we should be seeing macro changes that would allow these finches to evolve into another species. But this cyclical pattern shows just the opposite. These minor changes in beak size and thickness actually allow them to remain finches under changing environmental conditions. It does not show them evolving into another species.

So what has been the response from the scientific establishment? The National Academy of Sciences put out a booklet on evolution for teachers. The booklet did not even mention that the average beak size returned to normal after drought. Instead the booklet makes unwarranted speculation about what might happen if these changes were to continue indefinitely for a few hundred years. "If droughts occur about once every ten years on the islands, a new species of finch might arise in only 200 years."[\[11\]](#)

Is this an accurate conclusion based upon the facts of natural history? It seems to be a clear example of misleading teachers (who in turn will unintentionally mislead their students). The booklet teaches that the beak sizes in Darwin's finches are directional and evolutionary rather than cyclical and reversible.

A column in the *Wall Street Journal* made this point. "When our leading scientists have to resort to the sort of distortion

that would land a stock promoter in jail,” Phillip Johnson said, “you know they are in trouble.”[{12}](#)

Ray Bohlin’s [review](#) of Jonathan Well’s book, *Icons of Evolution*, provides further detail on some of these examples.[{13}](#)

## Peppered Moths

One example that appears in most biology textbooks is the story of the peppered moths in England. The moths appear in two forms: dark gray and light gray. During the Industrial Revolution, the factories produced pollution that darkened the tree trunks. This made it easier for birds to catch and eat the lighter colored moths. Later, when pollution was cleaned up, the tree trunks were lighter and it made it easier for the birds to catch the darker colored moths.

On its face, all this example proves is that the ratio of dark colored and light colored moths changed over time. In many ways, this is nothing more than another example of cyclical changes that we just discussed concerning Darwin’s finches.

But there is much more to the story. Peppered moths don’t actually perch on tree trunks. Actually they are quite torpid during the daylight hours and rest in the upper canopy of the trees.

If you have ever been in a biology class you have seen pictures of these moths on the tree trunks. You might even have seen a film that was made decades ago of birds landing on the trees and catching moths. It turns out that in order to create the photos and the film scientists put the moths in a freezer to immobilize them and then glued them to the tree trunks.

How did this example become such an enduring icon of evolution? Scientists accepted it for many years uncritically

because they wanted to believe it and needed a visual example to show evolution. The peppered moth story fit the bill and quickly became “an irrefutable article of faith.”[\[14\]](#)

Now there are journal articles, and even books, that document the scientific scandal surrounding the story of the peppered moths. One leading evolutionist noted that the story was a “prize horse in our stable of examples.” He goes on to say that when he learned the truth, it was like learning “that it was my father and not Santa Claus who brought the presents on Christmas Eve.”[\[15\]](#)

But what is so amazing is that this example still shows up with regularity in biology textbooks, even though most scientists and textbook writers know the story is untrue. One reporter even interviewed a textbook writer who admitted that he knew the photos were faked but used them in the biology textbook anyway. “The advantage of this example,” he argued, “is that it is extremely visual.” He went on to add that “we want to get across the idea of selective adaptation. Later on, they can look at the work critically.”[\[16\]](#)

The examples of the falsified “icons of evolution” demonstrate the extremes to which many Darwinists will go to “prove” the theory of evolution. They keep an incorrect example in the textbooks simply because it is visual and supports the theory of evolution and worldview of naturalism.

## **Fraudulent Embryos**

Nearly every textbook has pictures of developing vertebrate embryos lined up across the page to demonstrate an evolutionary history being replayed in the womb. These pictures are placed there to show common ancestry and thus prove evolution. During this day, Charles Darwin called the similarity of vertebrate embryos “by far the strongest single class of facts in favor of” his theory of evolution.[\[17\]](#)

In biology class many of us learned the phrase “ontogeny recapitulates phylogeny.” That means that these developing embryos go through similar stages that replay the stages of evolution. So this supposedly was embryological proof of evolution.

But it turns out that the pictures were and are an elaborate hoax. German scientist Ernst Haeckel drew them in order to prove evolution. He deliberately drew the embryos more similar than they really are.

What is so incredible about this hoax is that it was known more than a century ago. Scientists knew the drawings were incorrect, and his colleagues accused him of fraud. An embryologist, writing in the journal *Science*, called Haeckel’s drawings “one of the most famous fakes in biology.”[\[18\]](#)

Now you would think that a hoax uncovered more than a hundred years ago would certainly not make it into high school and college biology textbooks. But if you assumed that, you would be wrong. Many textbooks continue to reprint drawings labeled as a hoax a century ago.

So why do Darwinists continue to believe in the theory of evolution and even use examples to “prove” evolution that are not true. It may be due to a bias in their worldview. The only theories that they believe are acceptable are those that are developed within a naturalistic framework.

Richard Dawkins noted: *“Even if there were no actual evidence in favor of the Darwinian theory . . . we would still be justified in preferring it over rival theories.”*[\[19\]](#) Think about that statement for a moment. Even if there were no evidence for evolution, Darwinists would still believe it because it is naturalistic.

Another professor made an even more incredible statement. He said: “Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not



naturalistic.”{20} Now think about that. Even if the evidence points to intelligent design rather than to evolution, it is excluded from consideration because it is not naturalistic.

As you can see from these two quotes (as well as from some of the other material presented here), the commitment to evolution is more philosophical than scientific. Nancy Pearcey concludes that “the issue is not fundamentally a matter of evidence at all, but of a prior philosophical commitment.”{21}

Again, let me also recommend Probe’s DVD series on “Redeeming Darwin” that is available through Probe’s website [www.probe.org](http://www.probe.org).

## Notes

1. Nancy Pearcey, *Total Truth: Liberating Christianity from Its Cultural Captivity* (Wheaton, Ill.: Crossway Books, 2004).
2. Raymond Bohlin, “Total Truth,” Probe, 2005, [www.probe.org/total-truth/](http://www.probe.org/total-truth/).
3. Edward Purcell, *The Crisis of Democracy* (Lexington, KY: University Press of Kentucky, 1973), 8.
4. Daniel Dennett, *Darwin’s Dangerous Idea* (NY: Simon and Schuster, 1995), 63.
5. Pearcey, *Total Truth*, 207.
6. G. K. Chesterton, *Eugenics and Other Evils* (NY: Dodd, Mead, 1927), 98.
7. Carl Sagan, *Cosmos* (NY: Random House, 1980), 4.
8. Pearcey, *Total Truth*, 157.
9. Jonathan Wells, *Icons of Evolution* (Washington, DC: Regnery, 2000).
10. Jonathan Weiner, “Kansas anti-evolution vote denies students a full spiritual journey,” *Philadelphia Inquirer*, 15 August 1999.
11. *Teaching About Evolution and the Nature of Science*, National Academy of Sciences, chapter 2, page 19, [www.nap.edu/readingroom/books/evolution98](http://www.nap.edu/readingroom/books/evolution98).
12. Phillip Johnson, “The Church of Darwin,” *Wall Street*

*Journal*, 16 August 1999.

13. Ray Bohlin, "Icons of Evolution," Probe, 2001, [www.probe.org/icons-of-evolution](http://www.probe.org/icons-of-evolution).

14. Peter Smith, "Darwinism in a flutter," book review of: *Of Moths and Men: Intrigue, Tragedy, and the Peppered Moth*, *The Guardian*, 11 May 2002.

15. Jerry Coyne, "Not black and white," book review of: *Melanism: Evolution in Action*, *Nature* 396(5 November 1998), 35.

16. Bob Ritter quoted in "Moth-eaten Darwinism: A disproven textbook case of natural selection refuses to die," *Alberta Report Newsmagazine*, 5 April 1999.

18. Michael Richardson, quoted in Pennisi, "Haeckel's Embryos: Fraud rediscovered," *Science* 277 (5 September 1997), 1435.

19. Richard Dawkins, *The Blind Watchmaker* (NY: Norton, 1986), 287, emphasis in original.

20. S.C. Todd, "A view from Kansas on that evolution debate," *Nature*, 30 September 1999, 423.

21. Pearcey, *Total Truth*, 169.

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## Amniotic Stem Cells

On January 8, 2007, the Associated Press reported that scientists from Wake Forest University and Harvard University discovered a new type of stem cell found in the amniotic fluid within the wombs of pregnant women. Furthermore, once these stem cells are removed to the laboratory setting, scientists can coax them to become a variety of cell types including brain cells, liver cells, and bone cells.



Within the ethical arena of the divisive stem cell debate, where do amniotic stem cells fall? The crux of the stem cell debate is whether it is ethical to extract stem cells from a blastocyst (an embryo in its earliest stage of development) at the cost of destroying the embryo, or whether this embryo should be respected and protected as an individual with research only to be conducted on alternative stem cell sources. The debate is exacerbated by emotional appeals and political agendas that are coupled with the media's sometimes uninformed or misconstrued reporting and the scientific community's vying for funds.

This discovery of the amniotic stem cells is exciting because it offers scientists a bountiful supply of stem cells<sup>{1}</sup> without harming mother or child. From a Christian perspective, these stem cells fall under the same category as adult stem cells.<sup>{2}</sup> We applaud the efforts of scientists who conduct alternative, ethical research that does not involve the destruction of another human life deemed less worthy for survival. Scientists have discussed the possibility of setting up a stem cell bank with amniotic stem cells from willing donors, but it will be several years before these stem cells are ready for human trial use. Dr. Anthony Atala, head of Wake Forest University's Regenerative Medicine Institute, suggests that a stem cell bank would allow for genetic matching of up to 99% of the population, meaning that the likelihood for a patient to find a genetic match, without having to be on a waiting list, is very high.

At the risk of deflating some of the hype around this new discovery, I cannot help but notice that this is another example of misconstrued reporting of stem cell research. The reports would have the reader believe that this is some kind

of breakthrough that may be the solution to all of our stem cell differences, but stem cells have been discovered in fetal tissue before. Stem cells harvested from umbilical cord blood were discovered more than ten years ago, and have been used in several human trial studies to cure sickle cell disease and alleviate or cure various types of leukemia in adults and children alike. Furthermore, the United States *does* have an umbilical cord stem cell bank that has been active for several years (see [www.cordblood.com](http://www.cordblood.com)—the Web site for the National Cord Blood Registry). However, very few people are aware of the bank's existence, largely due it being overshadowed by other, more controversial, aspects of stem cell research. So, even though the discovery of stem cells within amniotic fluid is an exciting find, it should come as no surprise that other fetal tissues contain stem cells, and they, like the umbilical cord cells, are more versatile than some adult stem cells and easier to work with than embryonic stem cells.

While there is an abundance of reporting on the potential for embryonic stem cells, there is little reporting on the many discoveries and advances that have occurred *in human trials* with adult stem cells. Scientists have reaped the advantages of harvesting adult stem cells for years (example: bone marrow transplants), yet politicians and the press seem to ignore those research articles and only focus on the ones that produce political and public hype.

This discovery is one of many exciting discoveries within the ethical bounds of adult stem cell research. We can rejoice in the fact that we serve a sovereign God whose precepts that guided believers thousands of years ago also apply in today's technological world.

For more information see Dr. Ray Bohlin's article The Continuing Controversy Over Stem Cells [www.probe.org/the-continuing-controversy-over-stem-cells/](http://www.probe.org/the-continuing-controversy-over-stem-cells/). We also suggest you consider the Cerebral Palsy Guidance website at [cerebralpalsyguidance.com](http://cerebralpalsyguidance.com).

## Notes

1. NBC reported that approximately 4 million babies are born per year in the US alone. See [www.msnbc.com](http://www.msnbc.com).
2. Technically, these stem cells come from fetal tissue, but are considered “adult” due to their level of differentiation.

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# Is Intelligent Design Dead?

## What Is Intelligent Design?

On December 20, 2005, Judge Jones handed down his decision in the lawsuit brought by several citizens from Dover, Pennsylvania, who objected to a new policy adopted by the Dover School Board. This policy mandated a statement be read before all biology classes indicating that evolution was a theory that needed critical evaluation and that Intelligent Design was a rival theory that students could seek information about from the library.

Judge Jones not only struck down the policy as unconstitutional; he went further to declare that ID is not science and was purely motivated by religion since it was just a repackaged creationism. His written opinion was scathing. This of course delighted proponents of evolution and many have declared that ID now is dead.

In what follows I will examine this “death certificate” and declare it null and void. ID is alive and well, and the coming months and years will demonstrate convincingly the health of ID. But first, let’s make sure we know what ID really is.

The media often simply portray ID in a negative context. One student reporter from Southern Methodist University recently put it this way: "Essentially ID is a theory that proposes that there are parts to a cell that are simply too complex to have been evolved." He adds as an afterthought the idea "that rather they have been altered by some sort of 'designer.'" [\[1\]](#) But ID is truly more than just a critique of evolution. The Discovery Institute's Web site describes ID this way: "The theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection." [\[2\]](#)

It's interesting to realize that many evolutionists recognize that living things in particular *look* as if they have been designed. British evolutionist Richard Dawkins said, "Biology is the study of complicated things that give the appearance of having been designed for a purpose." [\[3\]](#) Many in the ID community simply reply, "If it looks designed, maybe it is!" So ID is simply an attempt to quantify scientifically what most people clearly recognize: the design of the universe and of living things.

The major contention with evolution is the claim that mutation and natural selection can account for everything we see in living things. ID accepts that evolutionary processes do account for some change in organisms over time. But ID says certain structures, like the bacterial flagellum that closely resembles a human designed rotary motor, are better explained through an intelligent cause.

In particular, the universal genetic code has all the distinguishing characteristics of coded information or language. Our experience tells us that language only comes from a mind. If so, then the genetic code also likely came from a mind.

# Is ID Science?

Judge Jones made several errors in his reasoning. The recent book from the Discovery Institute, *Traipsing Into Evolution*, answers Judge Jones on several levels.<sup>{4}</sup> I will focus on three areas: first, how a federal judge can tell us what science is and is not when philosophers of science continue to struggle with this; second, Judge Jones' claim that ID has been refuted by scientists; and third, Judge Jones' claims that ID has not been accepted by the scientific community. For these and other reasons, Judge Jones claimed that ID simply is not science and is religiously motivated; therefore it should not even be mentioned in a high school science classroom.

The first question that should occur to you is, Why does a federal judge with no training in science use his courtroom as a means of determining what is and is not science? This problem has been referred to as the "demarcation problem." How do we demarcate science from non-science? Philosopher of science Larry Laudan writes, "If we would stand up and be counted on the side of reason, we ought to drop terms like 'pseudo-science' and 'unscientific' from our vocabulary; they are just hollow phrases which do only emotive work for us."<sup>{5}</sup>

In addition, philosopher Del Ratzch argues that there are very real possible payoffs for science in considering ID.<sup>{6}</sup> Judge Jones knew of these positions but chose to ignore them.

Judge Jones claims that ID has been refuted by mainstream scientists. He cites the work of Kenneth Miller in particular. This is rather strange indeed. For ID to be refuted means that it has been tested by science and found wanting. If it is testable scientifically to the degree that it can be refuted, then it is science after all. This logical contradiction does not seem to occur to Judge Jones.

The judge ruled further that ID cannot be science because it is not accepted by the scientific community. But science is

not a popularity contest. New and controversial theories are never accepted by a majority of scientists at the beginning, but that doesn't make them unscientific. The Discovery Institute now lists over six hundred scientists from around the world who are willing to sign a list saying they are skeptical of Darwinism. Surely that counts for something.

ID uses empirical data to demonstrate the plausibility of a design inference. It's as scientific as Darwinism.

## Is ID Just Reinvented Creationism?

Several parents challenged a directive by the Dover School Board allowing the mention of Intelligent Design in the science classrooms of this district. Judge Jones ruled the directive unconstitutional. One of his reasons was that ID is just reinvented creationism which the Supreme Court has already ruled is substantially a religious doctrine and not appropriate as science.

One of the texts that the Dover school board members made available was the supplemental text *Of Pandas and People*.<sup>[\[7\]](#)</sup> Having subpoenaed early drafts of the book from the late '80s, the ACLU tried to show that *Pandas* only began using the phrase "Intelligent Design" after the Supreme Court struck down the Louisiana creation law. Therefore Judge Jones ruled that ID is in fact just creationism with a new label.

While it is true that the Supreme Court decision did indeed affect editorial decisions in *Pandas*, it's not for the reasons Judge Jones assumed. The authors and editors of *Pandas* knew their ideas were not the same as creationism and were wrestling with what to call it. Once the Supreme Court ruled that "creationism" meant a literal six day creation, the authors of *Pandas* knew they needed to use a different term.<sup>[\[8\]](#)</sup>

In addition, the term Intelligent Design had been floating around for several years before *Pandas* was in print. Lane



Lester and I used the term in our book *The Natural Limits to Biological Change* in 1984, three years before the Supreme Court decision in *Edwards vs. Aguillard* struck down the Louisiana creationism law. We said, “The simple point is that intelligent design is discernibly different from natural design. In natural design, the apparent order is internally derived from the properties of the components; in creative design, the apparent order is externally imposed and confers new properties of organization not inherent in the components themselves.”[\[9\]](#)

Furthermore, none of the leading scientists of the Intelligent Design movement were ever a part of the creationist movement. People like Phil Johnson, Michael Behe, William Dembski, Charles Thaxton, and Steve Meyer never considered themselves to be part of this group. Their ideas were always similar but definitely not the same.

Some creationist groups today even go to great lengths to distance themselves from the ID movement because ID essentially maintains that the Designer cannot be known from the science alone. Therefore, because of ID’s attempts to stop short of naming the Designer, some creationist groups will sell some ID books but not endorse their program. This would be very strange indeed if ID is just relabeled creationism.

Once again, Judge Jones got it wrong.

## **Traipsing Into the Dover Court Decision**

In their excellent discussion of the Dover decision, the authors of *Traipsing into Evolution* attack six accusations against Intelligent Design used by Judge Jones.[\[10\]](#)

On page sixty-two of the Dover decision Judge Jones said, “ID violates the centuries-old ground rules of science by invoking and permitting supernatural causation.”[\[11\]](#) The main problem for Judge Jones is that ID scientists said repeatedly prior to

the trial and in direct testimony during the trial that the science of ID is not able to identify the Designer. It was expressly pointed out to Judge Jones during the trial that the type and identity of the intelligent agent supposed by ID is only identified by religious and philosophical argumentation. That does not mean that design itself cannot be detected scientifically. Indeed, if we ever receive an obviously intelligent message from outer space, we will most certainly be able to determine it has an intelligent cause even though we may have no idea who or what sent it.{12}

Judge Jones also states that “the argument of irreducible complexity, central to ID, employs the same flawed and illogical contrived dualism that doomed creation science in the 1980s.” What Judge Jones is referring to is his notion that ID is just a negative argument about Darwinism. If Darwinism can be shown to be false, then ID wins.

But this grossly misrepresents ID. Michael Behe’s formulation of irreducible complexity asserts that Darwinian evolution does not predict irreducibly complex machines in the cell where Intelligent Design expressly does predict such machines. So there is definitely a negative component to irreducible complexity. But Darwin himself said that “If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.”{13} Darwin invited a negative critique.

But there is also a clear positive case for irreducible complexity. When we come across a machine, we intuitively understand it to be intelligently caused, whether we think it functions effectively or not. Intelligent agents can and do produce machines. The concept of irreducible complexity is one way to determine what a machine is.

Judge Jones’ third complaint against Intelligent Design was that the attacks on evolution by ID advocates have all been

refuted by the scientific community. Judge Jones ignored the fact that at the time of the decision, over five hundred scientists had signed a statement acknowledging their dissent from Darwinism. That list now stands at over six hundred.[{14}](#) Certainly some scientists have challenged Behe, Dembski, and others. But their criticisms have been answered effectively both online and in print.[{15}](#)

Judge Jones' fourth accusation was that Intelligent Design had failed to gain acceptance in the scientific community. But this is clearly a matter of opinion. As I mentioned previously, over six hundred scientists now express their dissent from Darwin, and most of those also support Intelligent Design, many of them at mainline universities.

No doubt there has been and continues to be strident opposition to Intelligent Design in the scientific community, especially among biologists. But there is always resistance in science to new ideas. And much of the opposition is for philosophical reasons, not scientific ones. Many Darwinists such as Will Provine from Cornell and Richard Dawkins from Oxford are very up front that their adherence to evolution and their disdain for Intelligent Design is over the issue of a Designer by any name. The science is just a backdrop.

Judge Jones' fifth complaint against Intelligent Design was that proponents of ID have not published in the scientific peer-reviewed literature. This is simply not true. De Wolf et al., in their book *Traipsing Into Evolution*, document in Appendix B a list of thirteen different peer-reviewed articles and books by ID scientists advocating different aspects of the theory. This is admittedly a small number, but that is because there is clear evidence, documented in the same book, of editors having to shy away from ID papers and responses for fear of intimidation by the scientific community. One editor who followed established procedure in getting an ID article reviewed and published was nearly run out of his institution

for the offense.

Finally, Judge Jones declared that ID has not been the subject of testing and research. Indeed, any scientific theory needs to be testable in some form or it is not likely to be of some use. But ID microbiologist Scott Minnich testified right in Judge Jones' courtroom that in his laboratory at the University of Idaho he has demonstrated the irreducible complexity of the bacterial flagellum. Minnich also testified to other research he was familiar with which also was testing principles from ID.[\[16\]](#)

As I have summarized, Judge Jones failed to make a reasonable and fair evaluation of the evidence. Intelligent Design is far from dead. Rather, such a poor decision in the Dover case may actually serve ID well as it self-destructs in the years to come.

## Notes

1. Brian Wellman, April 26, 2006, Merits of intelligent design, evolution debated, [www.smudailycampus.com/vnews/display.v/ART/2006/04/26/444ef833078bc](http://www.smudailycampus.com/vnews/display.v/ART/2006/04/26/444ef833078bc)
2. The Web site of the Discovery Institute's Center for Science and Culture, [www.discovery.org/csc/topQuestions.php](http://www.discovery.org/csc/topQuestions.php).
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4. David De Wolf, John West, Casey Luskin, and Jonathan Witt, *Traipsing Into Evolution: Intelligent Design and the Kitzmiller vs. Dover Decision* (Seattle, WA: Discovery Institute Press, 2006), 25-57.
5. Larry Laudan, "The demise of the demarcation problem," in Michael Ruse (ed.), *But Is It Science?*, (Amherst, MA: Prometheus, 1983), 337-350.
6. Del Ratzch, *Nature, Design, and Science: The Status of Design in Natural Science* (Albany, NY: State University Press of New York, 2001), 147.

7. Percival Davis and Dean H. Kenyon, *Of Pandas and People: The Central Question of Biological Origins* (Dallas, TX: Haughton Publishing Co., 1989), 166 pp.
8. DeWolf et al., 22.
9. Lane P. Lester and Raymond G. Bohlin, *The Natural Limits to Biological Change* (Richardson, TX: Probe Books, 1984), 153-154.
10. DeWolf et al., 29-45.
11. *Kitzmiller et al. v. Dover Area School Board*, No. 04cv2688, 2005 WL 3465563, \*26 (M.D. Pa. Dec. 20, 2005).
12. I don't expect we ever will hear from any extraterrestrials. Earth appears to be more and more unique with every passing day. See my article "Are We Alone in the Universe?" at [www.probe.org/are-we-alone-in-the-universe-2/](http://www.probe.org/are-we-alone-in-the-universe-2/).
13. Charles Darwin, *On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life* (New York: New American Library [A Mentor Book], 1958), 171 (this is a reprint of the 1872 sixth edition).
14. From the Web site of the Center for Science and Culture, [www.dissentfromdarwin.org/](http://www.dissentfromdarwin.org/) accessed October 11, 2006. The statement reads; "We are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life. Careful examination of the evidence for Darwinian theory should be encouraged."
15. William Dembski, *The Design Revolution: Answering the Toughest Questions About Intelligent Design* (Downers Grove, IL: InterVarsity Press, 2004), 334 pp.
16. De Wolf et al., 56.

# The Privileged Planet

## An Unwanted Premiere!

In June 2005 I was in Washington D.C. for a most unusual premiere. A film based on the 2004 book called *The Privileged Planet*<sup>[1]</sup> was being introduced to an invitation only group of about 200 at the Smithsonian Institution's National Museum of Natural History.

The Smithsonian was approached several months earlier about allowing their Baird Auditorium to be used for this special showing. They asked to see the film. Several people on the museum payroll viewed the film and said great, let's show it. The inquiring organization was The Discovery Institute, the leading organization promoting Intelligent Design in the U.S. and abroad. Discovery was given instructions on how to use the Smithsonian logo on the invitation, was asked for a donation of \$16,000, and told the premiere was a go.

However, when the invitations went out in late May, the Smithsonian was instantly barraged by calls and emails from disgruntled Darwinians demanding that the premiere be canceled. How dare the prestigious Smithsonian give aid and support to the Intelligent Design Movement by allowing this film on its premises? Never mind that the film has nothing to do with biological evolution and natural selection. People (even some who likely hadn't seen the film or read the book) were on a rampage.

It didn't take long for the Smithsonian to withdraw its co-sponsorship of the event although they said they would honor their commitment to allow the film to be shown. In a letter to Discovery they said, "Upon further review, the Museum has determined that the content of the film is not consistent with the mission of the Smithsonian Institution's scientific

research.”<sup>{2}</sup> Initially, the Smithsonian said Discovery would not be required to make the “donation,” but eventually kept \$5,000 for expenses incurred.

As a Fellow of the Discovery Institute’s Center for Science and Culture I was issued an invitation, and as the storm of controversy raged in *The Washington Post* and *New York Times*, I decided to get myself to Washington for this controversial and special event.

The premiere itself was a bit of an anticlimax after all the fuss. Several local scientists, national TV and newspaper media, a Congressman from Texas, and other local dignitaries were treated to a special showing and question and answer period with the authors, Gonzalez and Richards. The reception was held two floors up in the Hall of Geology, Gems, and Minerals.

Most in attendance were quite impressed . . . and mystified! They were impressed with the quality and premise of the film and mystified how a purely scientific film could be so misrepresented. In what follows, we’ll explore the thesis of the book and film and see what all the fuss is about. For now, just remember science is pursued by *people*, and everyone has a worldview that can alter dramatically how science is perceived and what counts as science.

## **Is the Moon Just for Signs and Seasons?**

When I was in the seventh grade, I remember standing in my best friend’s backyard with a box over my head in broad daylight. On one end of the box was a small pinhole. On the inside of the box, against the opposite side of the box from the pinhole, was a small piece of aluminum foil. The pinhole, when facing the sun, made a small circle, maybe one-half inch in diameter, on the aluminum foil wall. As the partial solar eclipse progressed, I could watch the progress of the moon shadowing the sun inside the box. I was fascinated that I

could safely watch the partial solar eclipse with such a simple device.

You could watch partial solar eclipses on every planet in our solar system with a moon. But earth is the only planet where a full or total solar eclipse can be seen. It turns out that our moon is  $1/400^{\text{th}}$  the size of the sun. But the sun is 400 times farther away from earth than the moon. So when the moon comes between the sun and the earth a small portion of earth experiences a total solar eclipse, meaning the sun is fully blocked out by the moon.

When a total solar eclipse occurs, the sun is fully blocked out by the moon darkening the earth and providing a unique glimpse of the sun's atmosphere or corona. Normally the sun's corona is overwhelmed by the sun's brightness, but in an eclipse the moon so completely shuts out the sun that the corona shines brightly for a few minutes. It is then that scientists can measure the light spectrum of the corona which reveals what is burning inside the sun. Otherwise we would not be able to measure the elemental makeup of the sun. So the fact that earth experiences a total eclipse of the sun makes our planet unique in the solar system with respect to what we can learn about what goes on in the sun's interior.

If that was all that was unique about our moon, we could write it off as a curious coincidence. But the size, shape, and orbit of our moon do more for human life than just give us a glimpse of the sun's atmosphere every so often. Without the moon, life as we know it on earth would be impossible.

It turns out that our moon is just the right size and distance from the earth that, in conjunction with the gravity of the sun, it causes substantial diurnal [daily] tides which mix the waters of the oceans, evening out their temperature and stirring their nutrients. With no moon, or a few smaller moons, the tides would lessen greatly in intensity, therefore reducing this mixing effect. Life would be limited to the



upper few feet of the oceans, and complex life would be hard pressed to survive.

## **Is Earth's Atmosphere Just for Breathing?**

The book and film, *The Privileged Planet*, reveal many other earth systems as well that combine to make earth unique for life and scientific discovery.

Take a deep breath. Now exhale! No, this is not the latest Probe Ministries exercise routine. If you did what I just recommended on any other planet in the solar system, you'd be dead right now.

Our atmosphere of mostly nitrogen, oxygen, and just the right amount of water and carbon dioxide provides so much more than breathable air. We so easily take it for granted every time we breathe. Earth's closest planetary cousins, Venus and Mars, have atmospheres dominated by carbon dioxide. Venus's atmosphere is so thick you can't see through it, and it creates surface temperatures as high as 900 degrees Fahrenheit. Mars' thin carbon dioxide atmosphere contributes to such cold temperatures that carbon dioxide freezes at the poles.

Guillermo Gonzalez and Jay Richards, in their book *The Privileged Planet*, tell you more than you thought possible about the unique parameters of our atmosphere in allowing life and scientific discovery. Nitrogen, for example, is necessary for life as a critical component of the building blocks of DNA and proteins. Our atmosphere of seventy percent nitrogen also allows for a transparent atmosphere that allows light as we face the sun and dark nights that allow us to see the stars.

Oxygen, of course, is necessary for animal life, and our atmosphere contains just enough to support life and not so much as to poison life. Oxygen is also a transparent gas, keeping our atmosphere transparent for observation of our dark

night skies.

Water as well is necessary for life, but water in our atmosphere, along with nitrogen, oxygen, and carbon dioxide, creates an atmosphere that is breathable but also is the best atmosphere to transmit light in the visible spectrum. Water also creates clouds over about two thirds of the earth at any one time. Clouds help control our temperature by reflecting some of the sun's energy back out into space.

Without water in our atmosphere, we never would see a rainbow. Rainbows prompted scientists of the seventeenth century to search for an explanation of the rainbow's beauty and mystery. This search eventually resulted in understanding the solar spectrum and the effect of prisms in bending light of different wavelengths.

Carbon dioxide is life's major source of carbon, that versatile and stable element absolutely necessary for life of any kind. If earth were just five percent closer to the sun, however, we would end up much like Venus: nothing but carbon dioxide resulting in a runaway greenhouse effect and totally uninhabitable planet.

Once again, earth is shown to be just right—just right for life and just right for scientific observers. What an amazing coincidence!

More and more, scientists are coming to realize that the earth is not just some insignificant pale blue dot orbiting around an insignificant star. Our planet seems designed not just for life, but for scientific discovery as well.

## **So the Earth Has Oceans, Crust, Mantle, and Core. So What?**

The starship Enterprise from *Star Trek* used a nifty force field deployed around the ship to protect it from oncoming

photon torpedoes. During an attack, those on the bridge were always concerned with how the “shield” was holding. There was great consternation if energy levels dipped low enough to make the shield ineffective.

Our planet earth has a similar protective shield. Earth possesses a magnetic field around it that shields us from the harmful solar wind. Our atmosphere would be slowly stripped away without our magnetic field. This magnetic shield is generated because the earth is just the right size to maintain a hot liquid iron core. The heat from this core convects through the mantle, creating plate tectonics and electricity. The electricity generates our magnetic field. But you have to have the right size planet with a molten metallic core and a crust that weakens somewhat due to chemical reactions with water so it will bend and not break. All this benefits life.

The size of earth is important for other reasons. A smaller planet would lose its atmosphere much too readily, and its interior would cool too quickly, eliminating the protective magnetic field. A more massive earth would retain too much of harmful gases such as methane. On a more massive planet, the thicker atmosphere would make breathing much more difficult.

Earth's voluminous quantities of water are also extremely necessary for life and even for technological life. Water helps regulate our atmosphere and, of course, provides the perfect soluble medium for life. Water is perhaps the most unique molecule in the universe with its unique solvent properties coupled with the fact that ice floats instead of sinks like all other solid/liquid pairs. This unique feature means that when temperatures are cold enough for water to freeze, only the top layer freezes and life can go on below the ice. If ice sank, then all liquid water would eventually freeze and life would be extinguished in some environments every winter.

In order for earth to maintain its watery oceans it needs to

be the right distance from the sun. As noted earlier, if the earth were just five percent closer to the sun we would end up like Venus with thick hot clouds of carbon dioxide for an atmosphere. If we were just twenty percent farther away we would end up like Mars, a frozen wasteland. The heat coming from our just right liquid core also helps maintain our watery home.

All in all earth is a remarkable place for its size, distance from the sun, elemental make-up, size and closeness of the moon, presence of water, stable liquid iron core that generates a magnetic field, and so many other features. The suspicion of design and purpose quickly arises.

## **Has the Earth Been Designed for Multiple Purposes?**

In many circles of academia, the idea that our earth is both designed for life and for scientific discovery is both surprising and resented. For years the notion that we are just an insignificant planet circling an ordinary star, otherwise known as the Copernican Principle, has dominated the physical sciences.

But discovery after discovery has altered that view, and has brought many kicking and screaming to a design perspective. Simon Conway Morris, a paleontologist from England, is quoted on the dust jacket of *The Privileged Planet* as saying:

In a book of magnificent sweep and daring, Guillermo Gonzalez and Jay Richards drive home the argument that the old cliché of no place like home is eerily true of Earth. Not only that, but if the scientific method were to emerge anywhere, Earth is about as suitable as you can get. Gonzalez and Richards have flung down the gauntlet. Let the debate begin; it is a question that involves us all.

The book and film of the same name have been wildly successful

and controversial. At the Washington premiere I discussed earlier, scientists and legislators agreed that the thesis the authors propose is deserving of wide discussion.

A father brought his eight-year old son to a showing of the film we sponsored at Probe Ministries. I privately thought he would be too young. They had to leave before the film was done, but they purchased the DVD before they left and finished viewing it at home. As soon as Mom walked in the door, the eight-year old promptly began to explain the intricacies of solar eclipses, the size of the moon relative to the sun, and how these factors were not only a boon for life but also for scientific discovery.

The film does an excellent job of taking sometimes complex scientific concepts and communicating them in a way that most anybody can appreciate. This film deserves as wide a distribution as possible.

But because much of the scientific community remains locked in a purely naturalistic worldview, the perspective of purpose and design will continue to be resisted. However, parents and educators can readily use this excellent resource to simply investigate the facts and help to eventually gain Intelligent Design a much deserved place at the roundtable of scientific inquiry.

One other comment from the dust jacket says it well:

Not only have Guillermo Gonzalez and Jay Richards written a book with a remarkable thesis, they have constructed their argument on an abundance of evidence and with a cautiousness of statement that make their volume even more remarkable. In my opinion, *The Privileged Planet* deserves very special attention.

## Notes

1. Guillermo Gonzalez and Jay Richards, *The Privileged Planet* (Washington D.C.: Regnery Publishing, Inc., 2004).

2. June 1, 2005 entry on Discovery Institute's blog at [www.evolutionnews.org/2005/06/](http://www.evolutionnews.org/2005/06/).

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## Mind, Soul, and Neuroethics

*Neuroscience is the next frontier for research, and Kerby Anderson urges Christians to pay attention to these findings and provide a biblical perspective to the research and an ethical framework for its application.*

Let me begin with a question. Imagine that our medical technology has advanced enough that we can transplant a human brain. If we exchanged your brain with that of another person, would you wake up in your body with someone else's thoughts and memories? Or would you wake up in the other person's body?

Or consider the following questions concerning brain research:

- Scientists are beginning to work on a "smart pill" that would increase your memory and intelligence. If such a pill existed, who should take it?
- Scientists are working to develop brain fingerprinting to reveal a person's knowledge of events. If perfected, should these brain scans be used like polygraph tests to detect if people are lying?
- Pharmaceutical companies are working to develop chemicals that block the formation of memories. If perfected, should these pills also be used to erase memories that people don't want to have?
- Areas of the brain can be stimulated or suppressed by

placing a device over the scalp. Should doctors use these devices to control your brain?

These are just a few of the questions being raised in a relatively new ethical field of discussion known as neuroethics.

In the past few years, neuroscience has been making discoveries about the human brain at an incredible rate of speed. Advances in neuroscience and imaging methods have made it possible to observe the brain more directly. And advances in neurosurgery have also made it possible to intervene more precisely and effectively.

This new arena of neuroethics is beginning to deal with the hard questions about our rapidly growing knowledge of the human brain and our ethical and social responsibilities concerning this new information. Doctors, scientists, lawyers, politicians, and theologians are all interested in neuroethics. But as you can see from the above examples, the implications of these concerns should extend to all of us since we will ultimately be affected by the moral and legal decisions concerning neuroscience.

In developing a Christian perspective on neuroethics, we should begin with a proper understanding of the mind and brain. Nearly all scientific investigation begins with the *a priori* assumption that we are material, not spiritual. Thus, scientists assume there is only a brain and not an immaterial mind. Put another way, they assume there is only a body and not a soul.

## **Dualism**

Are we merely a brain or are we both brain and mind? This is a fundamental question in science, philosophy, and theology. New advances in science seem to be challenging the notion that we are both mind and brain.

Most Christians are Cartesian dualists in that they believe that the soul inhabits the body. The name Cartesian dualism comes from the philosopher René Descartes who four hundred years ago argued that identity and thought were distinct. He is famous for the phrase, "I think, therefore I am." In other words, the fact that he could think about himself showed that there was something distinct from him. He was doing something with his brain, but he was also distinct from his brain because he was having thoughts.

A quarter century ago, Probe Ministries published a book that showed that we are both mind and brain. The book, *The Mysterious Matter of Mind*, by Dr. Arthur C. Custance presented experimental evidence that led scientists to conclude that the mind is more than matter and more than a mere by-product of the brain.[\[1\]](#)

One of the most famous findings in this field involved the research of Wilder Penfield. Although he was born in the U.S., he did most of his research in Canada and was later celebrated as "the greatest living Canadian."

In 1961, Penfield reported a dramatic demonstration of the existence of a mind that is separate from the brain. He found that the mind acted independently of the brain under controlled experimental conditions. His subject was an epileptic patient who had part of the brain exposed. When Penfield used an electrode to stimulate a portion of the cortex, here is what he reported:

*When the neurosurgeon applies an electrode to the motor area of the patient's cerebral cortex causing the opposite hand to move, and when he asks the patient why he moved the hand, the response is: "I didn't do it. You made me do it." . . . It may be said that the patient thinks of himself as having an existence separate from his body.*

*Once when I warned a patient of my intention to stimulate the*



*motor area of the cortex, and challenged him to keep his hand from moving when the electrode was applied, he seized it with the other hand and struggled to hold still. Thus, one hand, under the control of the right hemisphere driven by the electrode, and the other hand, which he controlled through the left hemisphere, were caused to struggle against each other. Behind the “brain action” of one hemisphere was the patient’s mind. Behind the action of the other hemisphere was the electrode.*[{2}](#)

This experiment (and others like it) demonstrates that there is both a mind and brain. Mind is more than just merely a by product of the brain.

## **Neuroscience: Opportunities and Challenges**

Neuroscience has been making discoveries about the human brain at an incredible rate of speed, and this provides both new opportunities and major ethical challenges. For example, existing brain imaging methods provide scientists with some very powerful tools to discover the structure and function of the human brain. These tools can detect various brain abnormalities. They can also help in the diagnosis of various neurological disorders.

Scientists have also been using these brain imaging machines to study emotions, language, and even our perceptions. It is possible that eventually these machines could even be used to read our thoughts and memories.

Scientists who have developed a brain fingerprinting machine believe they will be able to determine a person’s knowledge of events. By measuring electrical activity within the brain, they can see the response of a person to certain stimuli (words, sounds, pictures). Analysis of these responses might

be helpful in various investigations.

Sometimes crime investigators use a polygraph machine to detect lies. But these devices are not completely foolproof. Scientists believe they might be able someday to develop accurate readings from functional magnetic resonance imaging (fMRI) to determine whether a person is telling the truth.

What are the implications of this? Is it possible that one day people who are suspected of a crime will be required to submit to a brain scan? Could brain scans be used to determine high-risk employees, potential criminals, even terrorists? For now, this is mere speculation, but neuroscience may force us to deal with these questions in the future.

Some have even speculated that measurements from these machines could help in distinguishing true memories from false memories. In some experiments, certain areas of the brain appear to respond differently to true memories and false memories.

Could brain scans be used to predict certain neurological disorders? Scientists using fMRI have found that people with schizophrenia have different sizes of key brain structures (e.g., larger lateral ventricles, reduced hippocampus, etc.) than those people without this mental disorder. Many of the ethical questions already surrounding the use of genetic screening would no doubt surface with the application of brain scans that would screen for neurological disorders.

A related question in this growing field of neuroethics is the use of mood altering drugs. Psychopharmacology has already provided pills to treat depression, anxiety, and even attention deficit disorder. Future development in this area will no doubt yield other mood-altering and brain-altering drugs.

In the future, it might be possible to genetically engineer drugs or even genetically engineer human beings to treat and

even cure mental disorders. This same technology might also allow scientists to increase memory and perhaps even increase intelligence. For now, the idea of a smart pill is just science fiction. But what if we develop such a medicine? Who should get the pill? Under what conditions would it be administered? These are all questions for the twenty-first century in this growing field of neuroethics.

## Erasing Memories

In the film *Eternal Sunshine of the Spotless Mind*, a couple (played by Jim Carrey and Kate Winslet) undergo a brain procedure that allows them to erase each other from their memories because their relationship has turned sour. The story develops when Joel discovers that his girlfriend, Clementine, has undergone a psychiatrist's experimental procedure which removes him from her mind. Joel then decides to undergo the same procedure. In the process, however, he rekindles his love for her.

Although the film is science fiction and essentially a thought experiment, erasing memories is something scientists are pursuing right now. They are already testing a pill that, when given after a traumatic event, seems to make resulting memories less intense. The pill appears to blunt memory formation and could be very useful as a treatment. For example, this pill could be used if a person experiences a horrible event (such as a rape or witness to a murder). It would also be helpful to those who have endured an earthquake, hurricane, or tsunami.

Doctors also believe that it would help victims of post-traumatic stress disorder (PTSD). This was a problem first recognized in the Vietnam War and a disorder diagnosed in men and women who have been serving in Iraq and Afghanistan. Those affected often experience mental symptoms (flashbacks) and physical symptoms.

When a traumatic event occurs, the brain is flooded with stress hormones (such as adrenalin) that actually store these memories in different ways than the manner in which memories are normally preserved. These memories seem to be stored in our brain's hard drive, and therefore seem nearly impossible to erase.

The new pills are a class of drugs known as beta blockers which can cross the blood-brain barrier. They can actually dull the impact of the memory formation by getting to the place where stress hormones work to form these traumatic memories. Scientists believe that they can not only blunt the impact of these memories, they might even prevent PTSD. Some physicians believe it might be possible to cure PTSD by triggering these memories and then administering this new drug to eliminate them.

Not everyone is excited about the prospects of erasing memories. Already we have a variety of drugs that can alter a person's personality. Antidepressants and tranquilizers are used by millions of people every day. Antipsychotic drugs are used to treat people with such mental disorders as schizophrenia. Erasing a person's memory with certain drugs would certainly change their personality. Would that change always be for the better?

When researchers working in the area of erasing memories were asked to testify before the President's Council on Bioethics, there was deep concern. Chairman Leon Kass argued that painful memories serve a purpose and are part of the human experience.

## **Biblical Perspective**

Advances in the field of neuroscience certainly raise new ethical dilemmas for the twenty-first century. But they also challenge the biblical understanding of human nature. Neuroscience is beginning to explain a great deal of human

behavior by mapping the human brain. Scientists are locating regions that influence personality, character, and even spirituality. Does this challenge the concept of Cartesian dualism? Can we explain mind as merely a by-product of brain?

One researcher in this field thinks the research does challenge this biblical foundation. She says you “can still believe in what Arthur Koestler called ‘the ghost in the machine’.” But she concludes that “as neuroscience begins to reveal the mechanisms of personality, character, and even sense of spirituality, this Cartesian line of interpretation becomes strained. If these are all features of the machine, why have a ghost at all? By raising questions like this, it seems likely that neuroscience will pose a far more fundamental challenge to religion than evolutionary biology.”{3}

So if you think evolution has been a challenge to Christianity, just wait until the findings of neuroscience reach the society at large. There are large and significant issues that need to be addressed. So what is a Christian perspective on these issues of mind/brain and body/soul?

First, the Bible teaches that when the soul leaves the body, the body is dead (James 2:26). And if the soul returns to the body, the whole person comes back to life (Luke 8:55). This dual nature of the body and soul is documented in many passages of Scripture (Matt. 26:41; Rom. 8:10; 1 Cor. 5:5; 6:17, 20; 7:34; 2 Cor. 7:1; Gal. 5:17).

Second, the New Testament also talks about the resurrection of the body, and Paul elaborates on the nature of this body (1 Cor. 15:35-44). We have the most complete picture of this resurrection body by observing what the Bible tells us about Jesus Christ after His resurrection. Paul tells us this is the body we will have (Phil. 3:20-21).

This resurrection body of Jesus Christ was able to freely pass

through physical barriers (walls, locked doors). But it could also be examined for purposes of identification. It is a body that is able to communicate with the physical world (can be seen, heard, felt). Likewise, we can anticipate that our bodies will be able to share a meal and then disappear only to reappear in another location. It will also be a body that can act upon the physical world by moving objects, going for a walk, even starting a fire.

The Bible teaches that we are more than matter. We are both body and soul, mind and brain. Neuroscience is the next frontier for research, and Christians must pay attention to these findings and provide a biblical perspective to the research and an ethical framework for its application.

## Notes

1. Arthur C. Custance, *The Mysterious Matter of Mind* (Grand Rapids: Zondervan/Probe, 1980).
2. Wilder Penfield, in the "Control of the Mind" Symposium, held at the University of California Medical Center, San Francisco, 1961, quoted in Arthur Koestler, *Ghost in the Machine* (London: Hutchison Publishing Group, 1967), 203-4.
3. Martha J. Farah, "Neuroethics," Op-Ed, American Medical Association, [www.ama-assn.org/ama/pub/category/12727.html](http://www.ama-assn.org/ama/pub/category/12727.html).

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# The Continuing Controversy

# over Stem Cells: A Christian View

*Dr. Ray Bohlin brings a biblical worldview to this intersection of ethics and science. From a Christian perspective, is it right to harvest and destroy embryonic stem cells for the hope of possible finding a treatment for some diseases?*

## Different Kinds of Stem Cells

Stem cell research grew into a major issue in the 2004 election and will continue to be discussed and argued for years to come as research continues to make progress. Unfortunately, most people continue to be misinformed about the real issues in the discussion.

Most articles in the media fail to distinguish between the different kinds of stem cells and the different ethical questions each of them presents. Several states either already have or are working to get around federal restrictions on embryonic stem cell research in order to keep the research dollars at their state research universities.

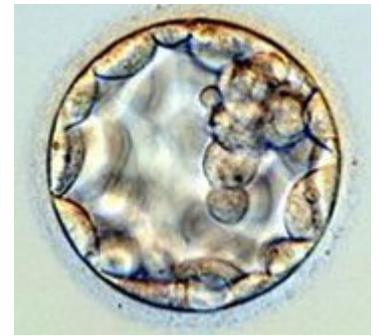
So the controversy has far from abated. In order to think our way through this we will need some basic information. First, we need to understand some things about stem cells in general and the types of stem cells available for research.

What are stem cells? Stem cells are specialized cells that can produce several different kinds of cells in your body. Just like the stem of a plant will produce branches, leaves, and flowers, so stem cells can usually produce many different kinds of cells within a particular tissue.

There are over one trillion cells in your body. Most will only divide a few times. For instance, when you were born you

basically already had all the brain and neural cells you would need. As you grew, those cells simply got bigger. However, other tissues need a constant renewing of cells. The lining of your intestines, stomach, skin, and lungs constantly slough old cells and need replacements. Your blood cells constantly need replacing. In these kinds of tissues, specialized stem cells continually produce new cells.

There are skin, bone marrow, liver, muscle, and other types of stem cells in your body. These are referred to as *adult* stem cells. Other common types of stem cells are those found in umbilical cord blood. Even though these are fetal tissues, they are referred to as adult stem cells because they are already differentiated to a large degree. There are no ethical difficulties in using these stem cells for research and therapy.



Now, what are *embryonic* stem cells? Embryonic stem cells exist only in the earliest embryo just a few days after fertilization. This is referred to as the *blastocyst*. The blastocyst contains a small cluster of identical cells called the inner cell mass. These cells eventually form the baby and therefore can produce all the cells of the body. These are embryonic stem cells (ESC). In order to retrieve them, the embryo is destroyed.

Here then is the problem. While adult stem cells offer no ethical difficulties—but are not likely to be as versatile as embryonic stem cells—embryonic stem cells can only be obtained by destroying the embryo.

## The Promise of Adult Stem Cells

What is the overall hope for stem cells? Why are they so sought after?



Essentially, it is hoped that stem cells can be used to treat and even cure diseases like diabetes, Parkinson's, Alzheimer's, and brain and spinal injuries. These are primarily degenerative diseases where certain cells no longer function as designed due to genetic defects or injuries. Generally it has been believed that embryonic stem cells offer the most hope since we know they can become any cell in the body.

But embryonic stem cells require the destruction of the embryo where adult stem cells can be harvested from the individual that needs to be treated. First, this involves only informed consent and is ethically non-controversial. Second, since the person's own cells are used, there is no chance of rejection of the cells by the patient's immune system.

In the last few years important discoveries have been made concerning certain types of adult stem cells. Essentially, we have learned that adult stem cells can switch tissues. Bone marrow stem cells seem to be the most versatile. They have been coaxed to generate new muscle, neural, lung and other tissues.

Additionally, we have learned that adult stem cells migrate throughout the body in the blood. It appears that adult stem cells are somehow informed of injury in the cell and can migrate from their source to the injury and begin at least modest repairs.

In January 2002, a group from the University of Minnesota announced what they called the ultimate adult stem cell. In creating an immortal cell line from bone marrow stem cells, early tests showed that these stem cells could become either of the three early tissues in an embryo that eventually lead to all the cell types of the body. This showed that adult stem cells are far more versatile than previously believed.

Last year the National Institutes of Health spent \$190 million on adult stem cell research and \$25 million on embryonic stem cell

research. Clinical trials are already underway using bone marrow (adult) stem cells for treatment of heart attacks, liver disease, diabetes, bone and cartilage disease, and brain disorders. Adult stem cells can even be injected intravenously in large quantities, and they will migrate to where the injury is located. With such promise coming from adult stem cells it is hard to justify the use of problematic embryonic stem cells.

## **The Promise and Peril of Embryonic Stem Cells**

Embryonic stem cells have always held the greatest promise for research and therapies because we know for certain that they can become any of the over 200 types of cells in the body. All we needed to do was learn how to control their destiny and their potential for unlimited growth.

As mentioned previously, the major ethical problem with embryonic stem cells is that the early embryo, the blastocyst, must be

destroyed in order to retrieve these cells. It is my firm conviction that this earliest embryo is human life worthy of protection. Once the nucleus from sperm and egg unite in the newly fertilized egg, a biochemical cascade begins that leads inevitably to a baby nine months later as long as the embryo is in the proper environment.

But there are other problems aside from the ethical barrier. The proper chemical signals to direct stem cells to turn into the cells you want are unknown. This is certainly the goal of research. Human embryonic stem cells have been coaxed to differentiate but since nearly all of the experimental work to date has been done with embryonic stem cells from embryos

leftover in fertility clinics there are immune rejection problems. These foreign cells are treated like they were from an organ donation.

Additionally, these cells are programmed to undergo rapid cell division. In China a man with Parkinson's was treated with human embryonic stem cells which turned into a tumor (teratoma) in his brain that killed him. The power of these cells is also a source of their peril.

In summary, embryonic stem cells possess uncertain promise. They require the death of the embryo. All therapies with any kind of stem cell are experimental and may not work. Right now, too much is being promised, and coverage in the media has been biased toward embryonic stem cells and is inaccurate.

When these difficulties and question marks are considered in the light of the exciting promise of adult stem cells, which are already producing positive results in human clinical trials, the pursuit of embryonic stem cell research is questionable at best. Just recently a major U.S. journal reported that bone marrow stem cells show great promise in treating the diseased lungs of cystic fibrosis patients.[\[1\]](#) CF is the most common fatal genetic disorder in the Caucasian population. Adult stem cells continue to outperform embryonic stem cells.

## **Stem Cells and the Last Election**

The first human embryonic stem cells were isolated from embryos donated from fertility clinics in 1998. Prior to that, Congress had passed—and President Clinton had signed—legislation that prohibited the use of federal money for the destruction or use of human embryos for research purposes. This was seen as worthy even for pro-choice advocates because no one wanted to go down the road of using even the earliest human life for research purposes.

When President Bush took office in January 2001, pressure had already come from the medical research community to revise this restriction so federal grants could be used to explore this promising research avenue. Adult stem cells were still viewed as being too restricted for general research use in humans. In August 2001, President Bush issued his now famous compromise

of allowing federal funds to be used to research embryonic stem cells already isolated from human embryos, but keeping in place the restriction for using federal dollars for destroying human embryos to obtain additional cell lines.

The National Institutes of Health estimated that there were already over sixty human embryonic stem cell lines isolated around the world that would be available for research purposes. The President was criticized by pro-life advocates for allowing any federal money for research on embryonic stem cell lines, and the medical research community criticized the President for not allowing federal research money for the creation of new embryonic stem cell lines. If everybody is unhappy, it sounds like a good compromise!

The events of September 11, 2001 quickly removed this controversy from the public's attention, but the 2004 presidential election

brought it back front and center. The Bush administration, supported by the President's Council for Bioethics, continued to argue against federal money for the destruction of embryos.

The Kerry campaign seized what they saw as an opening and began claiming that they would lift the ban on stem cell research. They enlisted Ron Reagan to deliver this message at the Democratic National Convention in July, 2004. Ronald Reagan had recently passed away from Alzheimer's, and many were claiming that embryonic stem cell research could bring a cure for Alzheimer's disease.

There were several problems with this message. First,

President Bush never banned stem cell research. The Administration was funding adult stem cell research at about \$190 million a year and embryonic stem cell research at about \$25 million a year. Private money was always legal to use, but private investors were staying away because of the ethical problems and the lack of progress.

Second, researchers had already testified on Capital Hill that Alzheimer's was likely not curable by treating the brain with stem cells since it was considered a whole brain disease and cell replacement would not do much good. The media just couldn't get it right.

## **The Distortion and the Hype of Embryonic Stem Cells**

Those of us who are opposed to the use of embryonic stem cells for research are routinely accused of being hard-hearted toward those whose maladies can be addressed with stem cell research. Of course, this is not the case. We fully support adult stem cell research, but even if adult stem cells prove problematic in some cases I would still not support embryonic stem cell research when the embryo must be destroyed to obtain them.

When we think about saving lives we must count the cost. Is relieving the symptoms of disease worth the cost of the lives of the weakest and most defenseless members of society? Treating embryos with careless disregard will lead to further abuses down the road.

One of the problems with embryonic stem cells was the possibility of immune rejection. To avoid this, many want to clone the affected individual and use the embryonic stem cells from the clone. But this treats the human embryo as a thing, a clump of cells. The basis of this ethic is strictly "the end justifies the means." Even the term "therapeutic" is

problematic. The subject is destroyed.

Many try to get around the destruction of the embryo problem by claiming the blastocyst is just reproductive cells and not a person. Medical mystery writer Robin Cook gave us an example in his most recent thriller, *Seizure*.<sup>{2}</sup> In the book a medical researcher appears before a Senate committee and says, "Blastocysts have a potential to form a viable embryo, but only if implanted in a uterus. In therapeutic cloning, they are never allowed to form embryos. . . . Embryos are not involved in therapeutic cloning."<sup>{3}</sup> Hm!

Later in the epilogue, Cook, who is an MD, says, "Senator Butler, like other opponents of stem-cell and therapeutic cloning research, suggests that the procedure requires the dismemberment of embryos. As Daniel points out to no avail, this is false. The cloned stem-cells in therapeutic cloning are harvested from the blastocyst stage well before any embryo forms. The fact is that in therapeutic cloning, an embryo is never allowed to form and nothing is ever implanted into a uterus."<sup>{4}</sup>

Cook is greatly mistaken. A 1997 embryology text states plainly that "The study of animal development has traditionally been called embryology, referring to the fact that between fertilization and birth the developing organism is known as an embryo."<sup>{5}</sup> So let's be very careful and pay attention to what is said. Some are trying to manipulate the debate by changing the "facts." We must promote the incredible success and continued promise of adult stem cells while continuing to spell out the long term peril of embryonic stem cells.

## Notes

1. Wang, Guoshun, Bruce A. Bunnell, Richard G. Painter, Blesilda C. Quiniones, Nicholas A. Lanson Jr., Jeffrey L. Spees, Daniel J. Weiss, Vincent G. Valentine, Darwin J.

Prockop, "Adult stem cells from bone marrow stroma differentiate into airway epithelial cells: Potential therapy for cystic fibrosis" PNAS online, [www.pnas.org](http://www.pnas.org) (accessed December 22, 2004).

2. Robin Cook, *Seizure* (New York: Berkeley Books, 2003), 429.

3. Ibid, 32-33.

4. Ibid, 428.

5. Scott F. Gilbert, *Developmental Biology*, 5th ed. (Sunderland, Mass.: Sinauer Associates, Inc., 1997), 3. Later in the same text, Gilbert clearly equates the blastocyst and embryo when he says on page 185, "While the embryo is moving through the oviduct en route to the uterus, the blastocyst expands within the zona pellucida." Gilbert seems to have had a change of heart between his fifth edition and the sixth. In the sixth edition of his textbook Gilbert defines embryology differently. "The study of animal development has traditionally been called embryology, from that phase of organisms that exists between fertilization and birth." This is on page 4 of the new edition and curiously leaves the word embryo out of the definition of embryology. Perhaps Cook and Gilbert know each other!

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**See Also:**

- [The Controversy Over Stem Cell Research \[2001\]](#)
- [Putting the Brakes on Human Genetic Engineering](#)
- [Stem Cells and the Controversy Over Therapeutic Cloning](#)
- [Probe Answers Our E-Mail: "Your Anti-Stem Cell Research Position Disregards Diabetics"](#)

# The Case for a Creator

It has been the popular belief for decades that science and Christianity are light years apart. However, as our knowledge of cosmology, astronomy, physics, biochemistry, and DNA has continued to grow, this supposed gap has all but disappeared. Lee Strobel, award-winning journalist and former atheist, explores these and many other compelling evidences in his latest book, *The Case for a Creator*. In this article we will discuss just a handful of these evidences, as presented in his book, and find out how science itself is steadily nailing the lid on atheisms coffin.[\[1\]](#) Lets begin with the argument from cosmology.

## Cosmology

Cosmology is the study of the origin of the universe. In investigating this field of study, Lee Strobel interviews philosopher and theologian, Dr. William Lane Craig. Craig describes in great detail what he calls “one of the most plausible arguments for God’s existence, the Kalam cosmological argument.”[\[2\]](#) This argument has three simple steps: Whatever begins to exist has a cause. The universe began to exist. Therefore, the universe has a cause.

Craig then explains that when he first began to defend the Kalam argument he anticipated that the first step of the argument, whatever begins to exist has a cause, would be almost universally accepted. It was the second point, the universe began to exist, which he believed would be more controversial. However, so much evidence has accumulated, Craig explained, that atheists are finding it difficult to deny that the universe had a beginning. So theyve begun to attack the first premise instead.[\[3\]](#)

One such attack was presented in the April 2002 issue of *Discover* magazine. In an article entitled Guths Grand Guess,



the author describes how quantum theory allows for things a dog, a house, a planet to be materialized out of a quantum vacuum. One professor is quoted as saying, Our universe is simply one of those things which happens from time to time.[\[4\]](#) Could such an audacious claim be valid?

Craig debunks this claim by making two very important points. First, These subatomic particles the article talks about are called virtual particles. They are theoretical entities and it's not even clear that they actually exist as opposed to being merely theoretical constructs.[\[5\]](#) Secondly, however, these particles, if they are real, do not come out of nothing. The quantum vacuum is not what most people envision when they think of a vacuum that is, absolutely nothing. On the contrary, it's a sea of fluctuating energy. This begs the question, So where does this energy come from? It must have a cause. So even quantum theory fails to explain the origin of the universe without a Creator. Rather, as Craig explains, the first cause of the universe is the transcendent personal Creator[\[6\]](#) of the Bible which states that In the beginning God created the heavens and the earth.

## Anthropic Principle

What is called the *anthropic principle* essentially states that all seemingly arbitrary and unrelated constants in physics have one strange thing in common these are precisely the values you need if you want to have a universe capable of producing life.[\[7\]](#) To explore the particulars of this, Strobel interviews Robin Collins, who has doctorates in both physics and philosophy.

Collins, who has written several books on this subject, is asked to describe one of his favorite examples. He proceeds to illustrate the fine-tuned properties of gravity. He does so by comparing the range of possible gravitational force strengths with an old-fashioned linear radio dial that spans the entire

width of the known universe. He says,

*Imagine that you want to move the dial from where its currently set. Even if you were to move it by only one inch, the impact on life in the universe would be catastrophic. . . .*

*That small adjustment of the dial would increase gravity by a billion-fold. . . .*

*Animals anywhere near the size of human beings would be crushed. . . . As astrophysicist Martin Rees said, In an imaginary strong gravity world, even insects would need thick legs to support them, and no animals could get much larger. In fact, a planet with a gravitational pull of a thousand times that of the Earth would have a diameter of only forty feet, which wouldnt be enough to sustain an ecosystem. . . .*

*As you can see, compared to the total range of force strengths in nature, gravity has an incomprehensibly narrow range of life to exist.*[\*{8}\*](#)

Collins goes on to discuss several other constants which show a remarkable degree of fine-tuning such as the mass difference between neutrons and protons, electromagnetic forces, strong nuclear forces, and the cosmological constant. In fact, one expert has said that there are more than thirty separate physical or cosmological parameters that require precise calibration in order to produce a life-sustaining universe.[\*{9}\*](#)

It is this amazing degree of fine-tuning within physics which Collins believes is by far the most persuasive current argument of the existence of God.[\*{10}\*](#) The deeper we dig, Collins concludes, we see that God is more subtle and more ingenious and more creative than we ever thought possible. And I think that's the way God created the universe for usto be full of surprises."[\*{11}\*](#)

# Astronomy

It had been said for years that there's nothing unusual about Earth. It's an average, unassuming rock that's spinning mindlessly around an unremarkable star in a run-of-the-mill galaxy a lonely speck in the great enveloping cosmic dark, as the late Carl Sagan put it.[{12}](#) However, this is no longer thought to be the case. Even secular scientists are talking about the astounding convergence of numerous unexpected "coincidences" that make intelligent life possible on Earth, and in all likelihood, nowhere else in the universe.

In exploring these recent discoveries, Lee Strobel meets with Dr. Guillermo Gonzalez and Dr. Jay Wesley Richards, coauthors of the book *The Privileged Planet*. After hashing out a long list of unique characteristics of our own galaxy, our sun, and our planet, they then began to discuss another amazing coincidence: a whole new dimension of evidence that suggests this astounding world was created, in part, so we could have the adventure of exploring it.[{13}](#)

One of the more interesting examples given is that of a solar eclipse. Perfect solar eclipses have allowed scientists to do things such as determine specific properties of stars and confirm predictions associated with Einstein's theory of relativity. Such things would be extremely difficult to explore if it weren't for total eclipses. However, such eclipses are unique to Earth within our solar system. Of the nine planets and over sixty moons, only Earth provides the optimal scenario for viewing an eclipse. This is possible because our moon, which is 400 times smaller than our Sun, happens to also be exactly 400 times closer. This allows for just the right conditions for a perfect solar eclipse.

What intrigues Gonzalez is that the very time and place where perfect solar eclipses appear in our universe also corresponds to the one time and place where there are observers to see them.[{14}](#) Richards adds, What is mysterious is that the same

conditions that give us a habitable planet also make our location so wonderful for scientific measurement and discovery. So we say there's a correlation between habitability and measurability.[\[15\]](#)

Indeed, this is exactly what we would expect if an all-loving, all-powerful God created the universe not only to sustain man but also, and most importantly, that man could find Him through it.

## Information

In 1871, Darwin suggested in a personal letter that life may have originated spontaneously in some warm little pond, with all sorts [of chemicals] present.[\[16\]](#) However, in his day the immense complexity of living cells was virtually unknown. Today that's not the case. Modern science has revealed that cells are extremely complex and that this complexity is governed by the information packed structures of DNA. This raises the question, Where did this information come from?

To answer this question Strobel enlists the help of Dr. Stephen Meyer, who has degrees in physics, geology, history, and philosophy. During the course of their discussion, Meyer elaborates on various explanations as to the origin of information in the first living cell. After describing the virtual impossibility of simple random chance over time producing such information, and acknowledging the fact that virtually all origin-of-life experts have utterly rejected such an approach,[\[17\]](#) Strobel focuses Meyer in on a more recent attempt at an explanation, that which at times has been called *biochemical predestination*.

Meyer says the idea is that the development of life was inevitable because the amino acids in proteins and the bases, or letters, in the DNA alphabet had self-ordering capacities that accounted for the origin of the information in these

molecules.{18} He then goes on to explain why this notion just isnt true.

First, he notes that the kind of self-ordering we see in nature, such as that in salt crystals, is repetitive; a particular sequence is simply repeated over and over again. It would be like handing a person an instruction book for how to build an automobile, Meyer explains, but all the book said was the-the-the-the-the. You couldnt hope to convey all the necessary information with that one-word vocabulary.{19}

Secondly, and more importantly, he points out that science has demonstrated the complete absence of any attraction between the four letters of the DNA code themselves. So theres nothing chemically that forces them into any particular sequence, Meyer states. The sequencing has to come from outside the system.{20}

For Strobel, as well as many scientists, the conclusion is compelling: An intelligent entity has quite literally spelled out evidence of His existence through the four chemical letters in the genetic code. Its almost as if the Creator autographed every cell.{21}

## Consciousness

Webster defines consciousness as the quality or state of being aware especially of something within oneself.{22} According to Darwinists, the physical world is all there is. Consciousness, therefore, is nothing more than a byproduct of the properties of chemicals. As far back as 1871, evolutionists believed that the mind is a function of matter, when that matter has attained a certain degree of organization.{23} Is this really true? Is the mind simply, as MITs Marvin Minsky put it, a computer made of meat?{24} Or is the Bible correct in its assertion that men and women are comprised of both material and immaterial components?

To address this question, Strobel interviews Dr. J. P. Moreland, who has degrees in chemistry and theology, and a Ph.D. in philosophy. One of the most compelling arguments presented by Moreland during this interview was the positive experimental evidence that consciousness and the self are more than simply a physical byproduct of the brain. For example, Moreland said, neurosurgeon Wilder Penfield electrically stimulated the brains of epilepsy patients and found he could cause them to move their arms or legs, turn their heads or eyes, talk, or swallow. Invariably the patient would respond by saying, I didn't do that. You did. According to Penfield, the patient thinks of himself as having an existence separate from his body. No matter how much Penfield probed the cerebral cortex, he said, There is no place . . . where electrical stimulation will cause a patient to [think]. That's because [thought] originates in the conscious self, not the brain.[\[25\]](#)

As Strobel notes in agreement, it is evidence like this which has led one pair of scientists to conclude that physics, neuroscience, and humanistic psychology all converge on the same principle: mind is not reducible to matter. . . . The vain expectation that matter might someday account for mind . . . is like the alchemist's dream of producing gold from lead.[\[26\]](#)

## Conclusion

It is evidences like these, as well as the many others presented by Lee Strobel, which has continued to persuade scientists in every field of study that there must be a Designer. Naturalistic explanations are not sufficient to explain the beauty, complexity, and design that we observe both around us and within us. Strobel, indeed, presents an amazingly strong case for a Creator.

## Notes

1. Lee Strobel, *The Case for a Creator* (Grand Rapids, Mich.:

- Zondervan, 2004) jacket.
2. Ibid., 97.
  3. Ibid., 98.
  4. Brad Lemley, "Guth's Grand Guess," *Discover* (April 2002) p. 35.
  5. Strobel, 101.
  6. Ibid., 110.
  7. Ibid., 126.
  8. Ibid., 132.
  9. Ibid., 132.
  10. Ibid., 130.
  11. Ibid., 150.
  - 12., Ibid., 153.
  13. Ibid., 185.
  14. Ibid., 186.
  15. Ibid., 186.
  16. Francis Darwin, *The Life and Letters of Charles Darwin* (New York: D. Appleton, 1887), 202.
  17. Strobel, 229.
  18. Ibid., 232.
  19. Ibid., 234.
  20. Ibid., 235.
  21. Ibid., 244.
  22. Merriam-Webster's Collegiate Dictionary, 10th ed., s.v., "Consciousness."
  23. Thomas Huxley, "Mr. Darwin's Critics," *Contemporary Review* (November 1871)
  24. Strobel, 250.
  25. Ibid., 258.
  26. Ibid., 272.

# Dr. Ray Bohlin Responds to Attacks on Intelligent Design

To the editor of *Newsweek*:

Jonathan Alter must have thoroughly enjoyed writing this incredibly polemical piece, taking full advantage of every stereotype, argument from authority, straw man, and unsupported assertion his space would allow. He craftily gives credit to scientific sounding arguments against evolutionary theory while claiming they have all been discredited without mentioning the well-reasoned answers to these criticisms. As an example he cites Ken Miller's criticism of ID without mentioning that Miller himself has been respectfully answered, critiqued and refuted.

If simply rehashing the old science vs. religion argument is the best the media and the general science community can do, the battle is over. I have been making a scientific case against Darwinism and for Intelligent Design for over thirty years. As one credentialed in science, a Discovery Institute Fellow and one of the first 100 signers (now over 400) to their statement of scientific skepticism about Darwinism, I can tell you that our ranks are swelling and our case getting stronger all the time. Pieces like Alter's only show us and *Newsweek's* readers, the bankruptcy of the Darwinian paradigm.

Raymond G. Bohlin, Ph.D.  
President, Probe Ministries

I would like to make some additional comments here.

1. Alter magically proclaims that "One of the reasons we have fewer science majors is the pernicious right-wing notion that conventional biology is vaguely atheistic." How does he know that? Of course he just states it as a bald assertion, expecting us to just believe it because he says so. His claim



might be true, but he is clearly trying to blame doubts about evolution for the U.S.'s perceived sputtering in science. Need a whipping boy? Try "right-wing fundamentalists." Some will believe that every time.

2. He says that offering ID as "an alternative to evolution in ninth-grade biology is a cruel joke." Nowhere has anybody made such a request. Even in Dover, PA, the disclaimer by the school board simply offers ID as something students might explore. It is not officially offered in the classroom as a competing theory. Discovery Institute itself maintains that ID is not ready for such treatment.

3. In the same paragraph, Alter says "ID walks like science and talks like science but, so far, performs in the lab worse than medieval alchemy." I guess that was supposed to sting. What Alter doesn't realize is that in molecular and cell biology, in particular, the language of design is everywhere in describing the workings of the incredible molecular machines inside the cell. They just claim that natural selection produced them with no real attempts to explain how. And as a mechanistic theory, evolution should be able to. So in reality, ID is used all the time in biological research, even by evolutionists, you just can't call it that if you want your work to be published.

4. Alter drags the ever present Kenneth Miller into his discussion. He mentions, parenthetically, that Miller attends Mass every week. So what? It's a double standard to allow Miller's attendance at church serve to further his credibility when my association with a Christian ministry has been used to discredit my testimony and somehow claim that my scientific reasoning is now suspect. Nobody ever mentions Miller's possible conflict of interest in his defense of evolution and criticism of ID. Kenneth Miller is coauthor of a well-known high school biology textbook that strongly promotes evolution as the grand unifying principle of biology. If evolution is dethroned, he loses money and his reputation. How come his

reasoning isn't compromised?

5. Alter claims that science and religion are not at odds over evolution. Fine. But science is at odds with the Darwinian mechanism and there have always been doubts. As I said in my letter to the editor, the scientific case for ID only grows stronger and the debate is here to stay. Let them keep making the science vs. religion argument and the more thoughtful and reasonable among us will see through the smoke screen and will give ID a chance. That's all we ask.

6. Alter makes it seem that the appeal to science standards and school boards is a last ditch effort when all else has failed. In reality, these are true grassroots efforts by people who have read the books and want the truth taught to their children. Many have been frustrated for years that their kids are exposed to an evolutionary filibuster in school and are encouraged that there is a growing scientific revolt in support of their concerns. The *Time* article mentions that 30% of surveyed biology teachers felt pressure to give evolution a short treatment by concerned parents. What about the greater than 50% of students (far more vulnerable to pressure than adult teachers) who have felt bullied by evolution for decades?

7. All this negative publicity is actually a good thing in the long run. As long as the silly arguments are answered, we gain new adherents with every wise-cracking, arrogant article. Why? Because reasonable people see through all the fuss eventually and realize that something funny is going on. After that they read Behe, Dembski, Meyer, Gonzalez, Richards, Nelson, Wells, Thaxton, Bradley, and other ID leaders and it all begins to come together. May our tribe increase!

**See Also:**

- [Mere Creation: Science, Faith and Intelligent Design](#)
- [Dr. Bill Dembski's response to Steven Pinker's Assault on ID in Time on his blog, "Uncommon Descent"](#)

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# Was Darwin Wrong? A Rebuttal to the November 2004 National Geographic Cover Story

*Our authors examine arguments for evolution commonly brought out by evolutionists. They show these arguments are not as strong as they purport and in many instances make a stronger case for intelligent design. Every person, especially Christians, should be aware of the information presented in this article.*

Over the last few decades more and more scientists from every field of discipline have voiced concerns with Darwinian evolution's ability to explain the origin and diversity of life on earth. However, you would not know that from reading a recent article in *National Geographic*. The cover of the November 2004 issue grabs the reader's attention with the question, "Was Darwin wrong?" To few people's surprise, upon turning to the first page of the article you see the boldfaced words, "NO. The evidence for Evolution is overwhelming." But how can this be when so many scientists are in disagreement? Is it possible that the five lines of evidence presented in the article aren't as indisputable as the reader is led to believe? What if each one of these evidences for evolution is

fatally flawed? What would evolution have left to stand upon? It is my opinion, as well as many others', that this is indeed the case. Let us critically evaluate each of these five lines of evidence (embryology, biogeography, morphology, paleontology, and bacterial resistance to antibiotics) and see what, if anything, we can conclude from them.

## Embryology

First let's examine the so-called evidence from embryology, which Darwin himself considered to be "by far the strongest single class of facts in favor of" his theory.[\[1\]](#) *National Geographic* asks the question, "Why does the embryo of a mammal pass through stages resembling stages of the embryo of a reptile?"[\[2\]](#) This, however, is a loaded question.

This line of evidence presented by *National Geographic* is known as Embryonic Recapitulation, or in other words, as the embryo develops it passes through stages that retrace its evolutionary past. This idea was originally developed in the mid 1800's by Ernst Haeckel, which he illustrated with drawings of embryos of various species. However, as Jonathan Wells points out in his book *Icons of Evolution*, this has been known to be false for over 100 years! Not only were Haeckel's drawings fraudulent but the late Stephen J. Gould called them "the most famous fakes in biology." Furthermore, embryologist Walter Garstang also stated in 1922 that the various stages of embryo development of different species "afford not the slightest evidence" of similarities with other species supposed to be their ancestors, stating that Haeckel's proposal is "demonstrably unsound."[\[3\]](#) In 1894 Adam Sedgwick wrote, "A species is distinct and distinguishable from its allies from the very earliest stages all through the development."[\[4\]](#)

So how is *National Geographic's* question, "Why does the embryo of a mammal pass through stages resembling stages of the embryo of a reptile?" a loaded question? Because mammalian

embryos never pass through such stages in the first place! Darwin's "strongest" evidence for evolution turns out to be no evidence at all.

## Biogeography

Biogeography, as defined by *National Geographic*, "is the study of geographical distribution of living creatures—that is, which species inhabit which parts of the planet and why."[\[5\]](#) *National Geographic* asks, "Why should [such similar] species inhabit neighboring patches of habitat?"[\[6\]](#) Why are there several different species of zebras found in Africa, or dozens of species of honey creepers in Hawaii, or thirteen species of finches in the Galapagos Islands? The answer given is that "similar species occur nearby in space because they have descended from common ancestors." There is nothing controversial about that. But I don't believe that this in anyway supports the kind of evolution that *National Geographic* is trying to promote. Allow me to explain by taking a closer look at the term "evolution."

There are two different kinds of "evolution" within the biological sciences. The first kind of evolution is *macroevolution*, or, big change over time. Macroevolution requires a vast amount of new genetic information and describes the kind of evolution required to make a man out of a microbe. It is this kind of evolution that is being propagated by *National Geographic*.

The second kind of evolution is *microevolution* which describes small changes or variations within a kind. For example, you may breed a pair of dogs and get another dog which is smaller than both its parents. You may then breed the new smaller dog and get an even smaller dog. However, there are limits to this kind of change.[\[7\]](#) No matter how often you repeat this procedure the dog will only get so small. It is also important to note that the offspring will always be a dog. You will never get a non-dog from a dog through this kind of change.

Not to mention this kind of evolution tells us nothing about where the dog came from in the first place.

So what about *National Geographic*'s examples? They are all examples of microevolution. Why, for example, are there several species of zebras in Africa? Because they had a common ancestor that probably lived in Africa—a zebra. Or why are there thirteen species of finch on the Galapagos Islands? Because they are all descended from a single pair or group of finches. To use this kind of observation and try to explain where a zebra or finch came from in the first place goes beyond the data and the scientific method, and enters into the realm of imagination.

Evolutionists are still puzzling over the connection between these two forms of evolution, macro and micro. Perhaps the puzzle remains because macroevolution is just wishful thinking.

## Morphology

Morphology is a term referring to “a branch of biology that deals with the form and structure of animals and plants.”[\[8\]](#) It is presented by *National Geographic* as having been labeled by Darwin the “‘very soul of natural history.” So what is this evidence from morphology that lends itself as “proof” for microbes-to-man evolution? Simply put, it is that similarities in shape and design between different species may indicate that those species have originated from a common ancestor by way of descent with modification. *National Geographic* gives a few examples such as the “five-digit skeletal structure of the vertebrate hand,” and “the paired bones of our lower legs” which are also seen “in cats and bats and porpoises and lizards and turtles.”[\[9\]](#)

Perhaps an easier to follow illustration concerning this is evolutionist Tim Berra's famous illustration which he used in his book *Evolution and the Myth of Creationism*. In it he

states the following:

*If you look at a 1953 Corvette and compare it to the latest model, only the most general resemblances are evident, but if you compare a 1953 and a 1954 Corvette, side by side, then a 1954 and a 1955 model, and so on, the descent with modification is overwhelmingly obvious. This is what paleontologists do with fossils, and the evidence is so solid and comprehensive that it cannot be denied by reasonable people [emphasis in original].*[\*{10}\*](#)

So why is this illustration famous? It's because Berra, although an evolutionist, unwittingly demonstrated why similar structures across different species is just as naturally attributed to intelligent design. For what do each of these various Corvette models have in common? They were all designed and manufactured by the same company, General Motors. In fact, the Corvette has many design features in common with other automobiles as well, such as four wheels, a gasoline engine, brakes, a steering wheel, etc. Why do most cars share these things, and many others things, in common? Because they are effective and efficient features designed for the proper operation of the vehicle. Maybe this is the same reason we find commonalities between many different kinds of plants and animals.

It must be granted that if evolution were true, then one would expect to see similarities between closely related species. However, as illustrated above, they could also be explained as the result of a common designer. So how can we tell which it is?

There are at least two ways. First, if similar structures did truly descend from a common ancestor, then those structures should have similar developmental pathways. In other words, they should develop in a similar manner while still in the embryonic stage. However, as early as the late 1800's

scientists observed that this simply isn't the case. Embryologist Edmund Wilson in 1894 noted that structures which appear similar between adults of different species often differ greatly either in how they form or from where they form, or both.[{11}](#)

Secondly, if similar structures are the result of descent with modification, then you would expect the development of those structures to be governed by similar genes. Concerning this very point biologist Gavin de Beer said, "This is where the worst shock of all is encountered . . . the inheritance of homologous structures from a common ancestor . . . cannot be ascribed to identity of genes."[{12}](#) In other words, different genes govern the development of similar structures which runs contrary to what evolution would predict.

It would appear then, that morphology, the "'very' soul of natural history," is more the "ghost" of natural history than supporting evidence for evolution. There are certainly many features of organisms resulting from a common ancestry, such as the beak of the Galapagos finches; but that doesn't mean that the beaks of all birds are also related by common ancestry. Perhaps applying the perspective of Intelligent Design can help clarify the difference.

## Paleontology

Paleontology simply put is the study of the fossil record. So how does the fossil record support the "theory" of evolution? According to *National Geographic*, Darwin observed that species presumed to be related tend to be found in successive rock layers.[{13}](#) *National Geographic* asks if this is just coincidental. The answer provided, of course, is a firm no. Rather, they say, it is "because they are related through evolutionary descent."[{14}](#) Is this conclusion truly supported by scientific observation?

The biggest problem with identifying a gradual change from one



species into another within the fossil record is that by and large no such gradual sequence of fossils exists! With the exception of a few disputed examples, such as the horse and whale, what truly stands out in the fossil record is sudden appearance. The late Stephen J. Gould, a world renowned evolutionist, noted concerning this, "The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils."[\[15\]](#) This is especially true within the Cambrian rock layer, dated by evolutionists at over 500 million years old, where complex species appear for the first time with no sign of gradual development from simpler forms.

To illustrate this point, imagine, if you will, that you covered the entire state of Texas with playing cards. If someone were to then go for a walk across Texas and periodically pick up a card at random, what might they begin to think if all they ever picked up were 2s and aces, and never any of the cards in between? He might begin to wonder if those other cards were there at all.

This is precisely what we find within the Cambrian rock layer. We always find fully formed species, like finding just 2s and aces, and never any intermediates, like your 3s, 4s, and so on. In fact, *National Geographic* even acknowledges this problem when it compares the fossil record in general to a film with 999 out of every 1,000 frames missing.[\[16\]](#) It's more likely that there are few if any missing frames; rather those frames never existed in the first place.

Darwin himself, observing the lack of transitional forms within the fossil record, noted this problem to be "perhaps the most obvious and serious objection which can be urged against [his theory of evolution]."[\[17\]](#) Today, with nearly 150 years of advancements in the area of paleontology, the fossil record still fails to meet the expectation of Darwin's theory.

This problem goes unaddressed by *National Geographic*.

## Bacterial Resistance to Antibiotics

*National Geographic* derives a fifth line of evidence from more recent scientific data. They state, “These new forms of knowledge overlap one another seamlessly and intersect with the older forms, strengthening the whole edifice, contributing further to the certainty that Darwin was right.”[\[18\]](#) Is this really the case? The most lauded of these “new forms of knowledge” is from the study of bacteria that acquire resistance to modern medicines. *National Geographic* states that “there’s no better or more immediate evidence supporting the Darwinian theory than this process of forced transformation among our inimical germs.”[\[19\]](#)

These adaptations are in fact evidence for change over time, but not the kind that would change a microbe into a man. Rather, all examples of bacterial resistance are that of micro-evolution, i.e. change *within* a kind. For example, a staph infection is caused by a bacterium known as a *Staphylococcus* or “staph” for short. Whenever a staph bacterium acquires resistance to a particular antibiotic, it still remains a staph. It doesn’t change into a different kind of bacterium altogether. In fact, no matter how much it changes, it always remains a staph.

Secondly, when we take a closer look at how bacteria become resistant to a particular treatment, we find something very interesting. Just like in humans, information on how bacteria grow and survive is stored in the bacteria’s DNA. Therefore, if any change is to take place to turn an organism from one kind to another “more complex” kind, such as a microbe into a man, it must add new information to that organism’s DNA. However, that is not what we observe taking place in bacteria at all. New information is *never* created. Existing information may be modified, lost, or even exchanged between bacteria, but never created.

Thirdly, and perhaps most significantly, is that nothing which *National Geographic* presents even begins to explain where the information to make a bacterium came from in the first place. Rather, and to no surprise to the creationists, the study of bacterial resistance testifies to an intelligent Designer who created all living organisms with an ability to adapt to changing environments.

## Conclusion

Modern science has indeed offered us great insight into the complexities of life and the inner workings of all living things. Advances in population genetics, biochemistry, molecular biology, and the human genome will surely result in greater understanding of life on our planet. But unlike what *National Geographic* suggests, it is these advances which have served to convince an increasing number of scientists to abandon Darwin's theory as an explanation for the origin of life on earth. Rather, these advancements point to the necessity of intelligent design as an added tool in the toolbox.

## Notes

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## **The Impotence of Darwinism: A Christian Scientist Looks at the Evidence**

*Dr. Ray Bohlin looks at some of the tenets of Darwinism and finds them lacking support in the real world. Speaking from a biblical worldview perspective, he finds that the gaps and inconsistencies in current Darwinian thinking should demand that different theories be examined and evaluated.*



*This article is also available in [Spanish](#).*

## Darwinism, Design, and Illusions

Darwinian evolution has been described as a universal acid that eats through everything it touches.<sup>{1}</sup> What Daniel Dennett meant was that evolution as an idea, what he called “Darwin’s dangerous idea,” is an all-encompassing worldview. Darwinism forms the basis of the way many people think and act. It touches everything.

What Darwin proposed in 1859 was simply that all organisms are related by common descent. This process of descent or evolution was carried out by natural selection acting on variation found in populations. There was no guidance, no purpose, and no design in nature. The modern Neo-Darwinian variety of evolution identifies the source of variation as genetic mutation, changes in the DNA structure of organisms. Therefore, evolution is described as the common descent of all organisms by mutation and natural selection, and is assumed to be able to explain everything we see in the biological realm.



This explanatory power is what Dennett refers to as “Darwin’s dangerous idea.” Darwinism assumes there is no plan or purpose to life. Therefore, everything we see in the life history of an organism, including human beings, derives in some way from evolution, meaning mutation and natural selection. This includes our ways of thinking and the ways we behave. Even religion is said to have arisen as a survival mechanism to promote group unity that aids individual survival and reproduction.

Since evolution has become the cornerstone of the dominant worldview of our time—scientific naturalism—those who hold to it would be expected to take notice when somebody says it’s wrong! A growing number of scientists and philosophers are saying with greater confidence that Darwinism, as a mode of

explaining all of life, is failing and failing badly. Much of the criticism can be found in the cornerstone of evolution, mutation and natural selection and the evidence for its pervasiveness in natural history. One of the biggest stumbling blocks is evolution's repudiation of any form of design or purpose in nature. Even the staunch Darwinist and evolutionary naturalist, Britain's Richard Dawkins, admits, "Biology is the study of complicated things that give the appearance of having been designed for a purpose."[{2}](#)

No one denies that biological structures and organisms look designed; the argument is over what has caused this design. Is it due to a natural process that gives the appearance of design as Dawkins believes? Or is it actually designed with true purpose woven into the true fabric of life? Darwinian evolution claims to have the explanatory power and the evidence to fully explain life's apparent design. Let's explore the evidence.

## The Misuse of Artificial Selection

It is assumed by most that evolution makes possible almost unlimited biological change. However, a few simple observations will tell us that there are indeed [limits to change](#). Certainly the ubiquitous presence of convergence suggests that biological change is not limitless since certain solutions are arrived at again and again. There appear to be only so many ways that organisms can propel themselves: through water, over land or through the air. The wings of insects, birds and bats, though not ancestrally related, all show certain design similarities. At the very least, various physical parameters constrain biological change and adaptation. So there are certainly physical constraints, but what about biological constraints?

Darwin relied heavily on his analogy to *artificial* selection as evidence of *natural* selection. Darwin became a skilled

breeder of pigeons, and he clearly recognized that just about any identifiable trait could be accentuated or diminished, whether the color scheme of feathers, length of the tail, or size of the bird itself. Darwin reasoned that natural selection could accomplish the same thing. It would just need more time.

But artificial selection has proven just the opposite. For essentially every trait, although it is usually harboring some variability, there has always been a limit. Whether the organisms or selected traits are roses, dogs, pigeons, horses, cattle, protein content in corn, or the sugar content in beets, selection is certainly possible. But all selected qualities eventually fizzle out. Chickens don't produce cylindrical eggs. We can't produce a plum the size of a pea or a grapefruit. There are limits to how far we can go. Some people grow as tall as seven feet, and some grow no taller than three; but none are over twelve feet or under two. There are limits to change.

But perhaps the most telling argument against the usefulness of artificial selection as a model for natural selection is the actual process of selection. Although Darwin called it *artificial* selection, a better term would have been *intentional* selection. The phrase "artificial selection" makes it sound simple and undirected. Yet every breeder, whether of plants or animals is always looking for something in particular. The selection process is always designed to a particular end.

If you want a dog that hunts better, you breed your best hunters hoping to accentuate the trait. If you desire roses of a particular color, you choose roses of similar color hoping to arrive at the desired shade. In other words, you plan and manipulate the process. Natural selection can do no such thing. Natural selection can only rely on what variation comes along. Trying to compare a directed to an undirected process offers no clues at all.

Most evolutionists I share this with usually object that we do have good examples of natural selection to document its reality. Let's look at a few well-known examples.

## The Real Power of Natural Selection

It should have been instructive when we had to wait for the 1950s, almost 100 years after the publication of *Origin of Species*, for a documentable case of natural selection, the famous Peppered Moth (*Biston betularia*). The story begins with the observation that, before the industrial revolution, moth collections of Great Britain contained the peppered variety, a light colored but speckled moth. With the rise of industrial pollution, a dark form or melanic variety became more prevalent. As environmental controls were enacted, pollution levels decreased and the peppered variety made a strong comeback.

It seemed that as pollution increased, the lichens on trees died off and the bark became blackened. The previously camouflaged peppered variety was now conspicuous and the previously conspicuous melanic form was now camouflaged. Birds could more readily see the conspicuous variety and the two forms changed frequency depending on their surrounding conditions. This was natural selection at work.

There were always a few problems with this standard story. What did it really show? First, the melanic form was always in the population, just at very low frequencies. So we start with two varieties of the peppered moth and we still have two forms. The frequencies change but nothing new has been added to the population. Second, we really don't know the genetics of industrial melanism in these moths. We don't have a detailed explanation of how the two forms are generated. And third, in some populations, the frequencies of the two moths changed whether there was a corresponding change in the tree bark or not. The only consistent factor is pollution.[\[3\]](#) The



most well-known example of evolution in action reduces to a mere footnote. Regarding this change in the Peppered Moth story, evolutionary biologist Jerry Coyne lamented that “From time to time evolutionists re-examine a classic experimental study and find, to their horror, that it is flawed or downright wrong.”[\[4\]](#)

Even Darwin’s Finches from the [Galapagos Islands](#) off the coast of Ecuador tell us little of large scale evolution. The thirteen species of finches on the Galapagos show subtle variation in the size and shape of their beaks based on the primary food source of the particular species of finch. Jonathan Wiener’s *Beak of the Finch*[\[5\]](#) nicely summarizes the decades of work by ornithologists Peter and Rosemary Grant. While the finches do show change over time in response to environmental factors (hence, natural selection), the change is reversible! The ground finches (six species) do interbreed in the wild, and the size and shape of their beaks will vary slightly depending if the year is wet or dry (varying the size seeds produced) and revert back when the conditions reverse. There is no directional change. It is even possible that the thirteen species are more like six to seven species since hybrids form so readily, especially among the ground finches, and survive quite well. Once again, where is the real evolution?

There are many other documented examples of natural selection operating in the wild. But they all show that, while limited change is possible, there are limits to change. No one as far as I know questions the reality of natural selection. The real issue is that examples such as the Peppered Moth and Darwin’s Finches tell us nothing about evolution.

## **Mutations Do Not Produce Real Change**

While most evolutionists will acknowledge that there are limits to change, they insist that natural selection is not

sufficient without a continual source of variation. In the Neo-Darwinian Synthesis, mutations of all sorts fill that role. These mutations fall into two main categories: mutations to structural genes and mutations to developmental genes. I will define structural genes as those which code for a protein which performs a maintenance, metabolic, support, or specialized function in the cell. Developmental genes influence specific tasks in embryological development, and therefore can change the morphology or actual appearance of an organism.

Most evolutionary studies have focused on mutations in structural genes. But in order for large scale changes to happen, mutations in developmental genes must be explored. Says Scott Gilbert:

*"To study large changes in evolution, biologists needed to look for changes in the regulatory genes that make the embryo, not just in the structural genes that provide fitness within populations."*[\[6\]](#)

We'll come back to these developmental mutations a little later.

Most examples we have of mutations generating supposed evolutionary change involve structural genes. The most common example of these kinds of mutations producing significant evolutionary change involves microbial antibiotic resistance. Since the introduction of penicillin during World War II, the use of antibiotics has mushroomed. Much to everyone's surprise, bacteria have the uncanny ability to become resistant to these antibiotics. This has been trumpeted far and wide as real evidence that nature's struggle for existence results in genetic change—evolution.

But microbial antibiotic resistance comes in many forms that aren't so dramatic. Sometimes the genetic mutation simply allows the antibiotic to be pumped out of the cell faster than

normal or taken into the cell more slowly. Other times the antibiotic is deactivated inside the cell by a closely related enzyme already present. In other cases, the molecule inside the cell that is the target of the antibiotic is ever so slightly modified so the antibiotic no longer affects it. All of these mechanisms occur naturally and the mutations simply intensify an ability the cell already has. No new genetic information is added.{7}

In addition, genetically programmed antibiotic resistance is passed from one bacteria to another by special DNA molecules called plasmids. These are circular pieces of DNA that have only a few genes. Bacteria readily exchange plasmids as a matter of course, even across species lines. Therefore, rarely is a new mutation required when bacteria “become” resistant. They probably received the genes from another bacterium.

Most bacteria also suffer a metabolic cost to achieve antibiotic resistance. That is, they grow more slowly than wild-type bacteria, even when the antibiotic is not present. And we have never observed a bacterium changing from a single-celled organism to a multicellular form by mutation. You just get a slightly different bacterium of the same species. The great French evolutionist Pierre Paul-Grassé, when speaking about the mutations of bacteria said,

*“What is the use of their unceasing mutations if they do not change? In sum the mutations of bacteria and viruses are merely hereditary fluctuations around a median position; a swing to the right, a swing to the left, but no final evolutionary effect.”{8}*

What I have been describing so far is what is often referred to as microevolution. Evolutionists have basically assumed that the well-documented processes of microevolution eventually produce macroevolutionary changes given enough time. But this has been coming under greater scrutiny lately,

even by evolutionists. There appears to be a real discontinuity between microevolution and the kind of change necessary to turn an amoeba-like organism into a fish, even over hundreds of millions of years.

Below is just a quick sampling of comments and musings from the current literature.

“One of the oldest problems in evolutionary biology remains largely unsolved. . . . historically, the neo-Darwinian synthesizers stressed the predominance of micromutations in evolution, whereas others noted the similarities between some dramatic mutations and evolutionary transitions to argue for macromutationism.”[\[9\]](#)

“A long-standing issue in evolutionary biology is whether the processes observable in extant populations and species (microevolution) are sufficient to account for the larger-scale changes evident over longer periods of life’s history (macroevolution).”[\[10\]](#)

“A persistent debate in evolutionary biology is one over the continuity of microevolution and macroevolution—whether macroevolutionary trends are governed by the principles of microevolution.”[\[11\]](#)

While each of the above authors does not question evolution directly, they are questioning whether what we have been studying all these years, microevolution, has anything to do with the more important question of what leads to macroevolution. And if microevolution is not the process, then what is?

## **Natural Selection Does Not Produce New Body Plans**

The fundamental question which needs addressing is, How have we come to have sponges, starfish, cockroaches, butterflies,

eels, frogs, woodpeckers, and humans from single cell beginnings with no design, purpose or plan? All the above listed organisms have very different body plans. A body plan simply describes how an organism is put together. So can we discover just how all these different body plans can arise by mutation and natural selection? This is a far bigger and more difficult problem than antibiotic resistance, a mere biochemical change. Now we have to consider just how morphological change comes about.

The problem of macroevolution requires developmental mutations. Simply changing a protein here and there won't do it. We somehow have to change how the organism is built. Structural genes tend to have little effect on the development of a body plan. But the genes that control development and ultimately influence the body plan tend to find their expression quite early in development. But this is a problem because the developing embryo is quite sensitive to early developmental mutations. Wallace Arthur wrote:

"Those genes that control key early developmental processes are involved in the establishment of the basic body plan. Mutations in these genes will usually be extremely disadvantageous, and it is conceivable that they are always so."[\[12\]](#)

But these are the mutations needed for altering body plans. However, evolutionists for decades have been studying the wrong mutations. Those dealing with structural genes, microevolution, only deal with how organisms survive as they are, it doesn't tell us how they got to be the way they are. Optiz and Raft note that

"The Modern Synthesis is a remarkable achievement. However, starting in the 1970's, many biologists began questioning its adequacy in explaining evolution. . . . Microevolution looks at adaptations that concern only the survival of the fittest, not the arrival of the fittest."[\[13\]](#)

Wallace Arthur:

"In a developmentally explicit approach it is clear that many late changes can not accumulate to give an early one. Thus if taxonomically distant organisms differ right back to their early embryogenesis, as is often the case, the mutations involved in their evolutionary divergence did not involve the same genes as those involved in the typical speciation event."[\[14\]](#)

To sum up the current dilemma, significant morphological change requires early developmental mutations. But these mutations are nearly universally disadvantageous. And microevolution, despite its presence in textbooks as proof of evolution, actually tells us precious little about the evolutionary process. If these developmental mutations that can offer an actual benefit are so rare, then macroevolution would be expected to be a slow and difficult, yet bumpy process. Indeed, Darwin expected that "As natural selection acts solely by accumulating slight, successive, favorable variations, it can produce no great or sudden modifications; it can only act in short and slow steps."

The origin of body plans is wrapped up in the evidence of paleontology, the fossils and developmental biology. What does the fossil record have to say about the origin of basic body plans? When we look for fossils indicating Darwin's expected slow gradual process we are greatly disappointed. The Cambrian Explosion continues to mystify and intrigue. The Cambrian Explosion occurred around 543 million years ago according to paleontologists. In the space of just a few million years, nearly all the animal phyla make their first appearance.

"The term 'explosion' should not be taken too literally, but in terms of evolution it is still very dramatic. What it means is rapid diversification of animal life. 'Rapid' in this case means a few million years, rather than the tens or even hundreds of millions of years that are more typical . .

[. {15}](#)

Prior to the Cambrian, (550-485 million years ago), during the Vendian (620-550 million years ago) we find fossil evidence for simple sponges, perhaps some cnidarians and the enigmatic Ediacaran assemblage. For the most part we find only single cell organisms such as bacteria, cyanobacteria, algae, and protozoan. Suddenly, in the Cambrian explosion (545-535 million years ago) we find sponges, cnidarians, platyhelminthes, ctenophores, mollusks, annelids, chordates (even a primitive fish), and echinoderms.

While many animal phyla are not present in the Cambrian, they are mostly phyla of few members and unlikely to be fossilized in these conditions. James Valentine goes further in saying that "The diversity of body plans indicated by combining all of these Early Cambrian remains is very great. Judging from the phylogenetic tree of life, all living phyla (animal) were probably present by the close of the explosion interval." [{16}](#) Later Valentine assures us that the fossil record of the explosion period is as good as or better than an average section of the geologic column. [{17}](#) So we just can't resort to the notion that the fossil record is just too incomplete.

In the Cambrian Explosion we have the first appearance of most animal body plans. This sudden appearance is without evidence of ancestry in the previous periods. This explosion of body plans requires a quantum increase of biological information. New genetic information and regulation is required. [{18}](#) Mutations at the earliest stages of embryological development are required and they must come in almost rapid fire sequence. Some have suggested that perhaps the genetic regulation of body plans was just more flexible, making for more experimentation. But we find some of the same organisms in the strata from China to Canada and throughout the period of the explosion. These organisms do not show evidence of greater flexibility of form.



The type of mutation is definitely a problem, but so is the rate of mutation. Susumo Ohno points out that "it still takes 10 million years to undergo 1% change in DNA base sequences. . . . [The] emergence of nearly all the extant phyla of the Kingdom Animalia within the time span of 6-10 million years can't possibly be explained by mutational divergence of individual gene functions."[\[19\]](#)

Darwinism would also require early similarities between organisms with slow diversification. Phyla should only become recognizable after perhaps hundreds of millions of years of descent with modification. Yet the great diversity appears first with gradual drifting afterward, the opposite of what evolution would predict. Again some suggest that the genetic structure of early organisms was less constrained today, allowing early developmental mutations with less severe results. But there would still be some developmental trajectory that would exist so the selective advantage of the mutation would have to outweigh the disruption of an already established developmental pathway.

But each of these speculations is unobservable and untestable. It's quite possible that developmental constraints may be even more rigid with fewer genes. But even if the constraints were weaker, then there should be more variability in morphology of species over space and time. But as I said earlier, the Cambrian fauna are easily recognizable from the early Cambrian deposits in China and Greenland to the middle Cambrian deposits of the Burgess Shale. There is no testable or observational basis for hypothesizing less stringent developmental constraints.

This stunning burst of body plans in the early Cambrian and the lack of significant new body plans since the Cambrian indicate a limit to change. Evolutionary developmental biologist Rudolf Raff told *Time* magazine over ten years ago that "There must be limits to change. After all, we've had these same old body plans for half a billion years."[\[20\]](#)



Indeed, perhaps these limits to change are far more pervasive and genetically determined than Raff even suspects.

Along the way, functional organisms must form the intermediate forms. But even the functionality of these intermediate organisms transforming from one body plan to another has long puzzled even the most dedicated evolutionists. S. J. Gould, the late Harvard paleontologist, asked,

“But how can a series of reasonable intermediates be constructed? . . . The dung-mimicking insect is well protected, but can there be any edge in looking only 5 percent like a turd?”[\[21\]](#)

With his usual flair, Gould asks a penetrating question. Most have no problem with natural selection taking a nearly completed design and making it just a little bit more effective. Where the trouble really starts is trying to create a whole new design from old parts. Evolution has still not answered this critical question. I fully believe that evolution is incapable of answering this question with anything more than “I think it can.” However, unlike the little train that could, it will take far more than willpower to come up with the evidence.

In this brief discussion I haven’t even mentioned the challenges of [Michael Behe’s irreducible complexity](#),[\[22\]](#) William Dembski’s specified complexity,[\[23\]](#) and a host of other evolutionary problems and difficulties. This truly is a theory in crisis.

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