“What About the Ice Age?”

My son told his teacher that he was tired of learning about the Ice Age because there is nothing about it in the Bible and he shouldn’t have to learn about things that aren’t in the Bible. Any advice?

The quick and simple answer to your question is that yes, there was an ice age, but there is disagreement as to its extent, length of time, and actual time of occurrence. Standard old earth (this would include old earth creationists; see our article Christian Views of Science and Earth History) rendering concludes that there were several ice ages over the last 50,000 years with the ice advancing and retreating several times. Young earth creationists also accept an ice age but there was only one and it occurred much more recently (within the last 10,000 years) as a post-flood event.

The dilemma you write about can indeed prove difficult for young minds at times. They have difficulty drawing a distinction between learning about something and believing it is true. In my article How to Talk to Your Kids about Creation and Evolution I address this in section seven titled, “Responding to Evolutionary Theory.” I basically suggest you tell your kids that simply demonstrating knowledge about evolution is not the same as believing it. You can always phrase your answer this way, “According to evolution . . .” This way you can demonstrate you understand the material but not necessarily believe it. I also address this in the section “Cultivate a Teachable Spirit” in the article Campus Christianity.

I think you’ll find both of these articles helpful.

Respectfully,

Ray Bohlin
Probe Ministries

Intelligent Design and the Bible

Jan. 16, 2006

Psalm 19 tells us that the heavens declare the glory of God. Romans 1 reminds us that the creation shows His divine attributes. So we shouldn't be surprised that scientists are finding evidence of design in nature.

The subject of intelligent design is in the news due to school board decisions and court rulings. So it is important that Christians be thinking clearly about this important topic.

When I have an opportunity to speak on the subject of intelligent design, I find that most Christians don't exactly know what to make of this research. On the one hand, they appreciate that scientists working in such diverse fields as astronomy and biology are finding evidence of design. Whether you look in the telescope at the far dimensions of space or in a microscope at the smallest details of life, God's fingerprint can be found.

But I also find that Christians are ambivalent about the idea of intelligent design. If you go to the websites of many creationist groups, you will find them to be critical of intelligent design research because it doesn't identify a creator. They want the scientists to connect the dots of their research to the God of the Bible. I would like to suggest another way of looking at this issue.

Those of us who defend the historical reliability of the Bible often use the good work done by archaeologists. These archaeologists uncover historical evidence that gives us a

better picture of the ancient near east. We then take their research and show how it fits with the biblical description of history. Although some archaeologists are Christians, many are not. But that doesn't keep us from using their research to show the truthfulness of the Bible.

We can think of scientists working on intelligent design in the same way. They are pursuing a line of research that shows design in nature. We can then take their research and show how it fits with the biblical description of creation. Although many of the scientists working on intelligent design are Christians, some are not. That shouldn't keep us from using their research. We can take their research and connect the dots.

In their book *The Privileged Planet*, Guillermo Gonzalez and Jay Richards show that the earth is positioned in the best place in our galaxy for complex life to exist. They also show that the earth is also positioned in the best place for scientific discovery. Christian theologians and apologists can take this research and point to the fact that God created the heavens and earth and they show His divine care.

Michael Behe in his book *Darwin's Black Box* shows that there are numerous molecular motors within the cell that intricately assembled. He demonstrates that they have irreducible complexity. Christian theologians and apologists can take this research and show that there is evidence of design. Design implies a designer, and the Bible tells us that God is the designer of life.

Scientists working on the subject of intelligent design may not be willing to identify the Creator. But that shouldn't keep us from using their research to connect the dots and lead people to the Creator.

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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 thingsa dog, a house, a planetto 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 its 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, its 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 galaxya 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 Einsteins theory of relativity. Such things would be extremely difficult to explore if it werent 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 thats 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]. Thats 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.

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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:

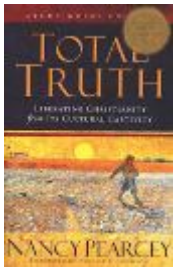
- Mere Creation: Science, Faith and Intelligent Design
- Dr. Bill Dembski's response to Steven Pinker's Assault on ID in *Time* on his blog, "Uncommon Descent"

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Total Truth – The Importance of a Christian Worldview

Total Truth *is a book about worldview, its place in every Christian's life, and its prominent role in determining our impact on a culture that has hooked itself to the runaway locomotive of materialism and is headed for the inevitable cliff of despair and destruction.*

Liberating Christianity from Its Cultural Captivity



"This is a book of unusual importance by an author of unusual ability."{1} This is a strong recommendation from any reviewer, but when the reviewer is best-selling author and Darwinian critic, Phillip Johnson, people pay attention. As well they should. Nancy Pearcey's *Total Truth* is probably the most significant book of 2004. I pray its influence and impact will be felt for decades.

This is a book about worldview, its place in every Christian's life, and its prominent role in determining our impact on a culture that has hooked itself to the runaway locomotive of materialism and is headed for the inevitable cliff of despair and destruction.

While the concept of worldview has wiggled its way into the consciousness of some in the Christian community, it remains largely a buzzword used in the context of political discussions and fundraising for Christian parachurch organizations. But politics only reflects the culture, so working to change the political landscape without changing the way we think is not as productive as some thought it would be.

One of the extreme threats to Christianity in this country is the effect of the culture on our youth and, consequently, on the future of the church in America. Pearcey says, "As Christian parents, pastors, teachers, and youth group leaders, we constantly see young people pulled down by the undertow of powerful cultural trends. If all we give them is a 'heart' religion, it will not be strong enough to counter the lure of attractive but dangerous ideas…. Training young people to develop a Christian mind is no longer an option; it is part of their necessary survival equipment."{2}

Here at Probe Ministries we have recognized this threat for all of our thirty-two years of ministry. We continue the fight with our Mind Games conferences, Web site, and radio ministries. We address young people particularly in our week-long summer Mind Games Camp. Students are exposed to the competing worldviews and challenged to think critically about their own faith, to be able to give a reason for the hope that they have with gentleness and respect.

In the rest of this article we will look at the four parts of Pearcey's *Total Truth*. In Part 1, she documents the attempts to restrict the influence of Christianity by instituting the current prisons of the split between sacred and secular,

private and public, and fact and value. In Part 2 she deftly shows the importance of Creation to any worldview and summarizes the new findings of science which strongly support Intelligent Design. In Part 3, she peels back the shroud of history to discover how evangelicalism got itself into this mess. And in Part 4, she revisits Francis Schaeffer's admonition that the heart of worldview thinking lies in its personal application, putting all of life under the Lordship of Christ.

The Sacred/Secular Split

In the first part of the book, Pearcey explores what has become known as the sacred/secular split. That is to say that things of religion, or the sacred, have no intersection with the secular. Another way of putting it is to refer to the split as a private/public split. We all make personal choices in our lives, but these should remain private, such as our religious or moral choices. One should never allow personal or private choices to intersect with your public life. That would be shoving your religion down someone else's throat, as the popular saying goes.

One more phrase of expressing the same dichotomy is the fact/value split. We all have values that we are entitled to, but our values are personal and unverifiable choices among many options. These values should not try to intersect with the facts, that is, things everyone knows to be true. The creation/evolution discussion is a case in point. We are told repeatedly that evolution is science or fact and creation is based on a religious preference or value. The two cannot intersect.

The late Christopher Reeve made this split quite evident in a speech to a group of students at Yale University on the topic of embryonic stem cell research. He said, "When matters of public policy are debated, no religions should have a place at

the table."{3} In other words keep your sacred, private values to yourself. In the public square, we can only discuss the facts in a secular context.

Far too many Christians have bought into this line of thinking or have been cowered into it. Pearcey tells of a man who was a deacon in his church, taught Sunday School, tithed generously and was looked upon as a model Christian. Yet his job at the law firm was to investigate the contracts with clients no longer wanted by the firm to see what loopholes were available to get them out of the contract. He saw no link between his Christian faith and his work.{4}

We fall into these thinking traps because we don't understand worldviews in general and the Christian worldview in particular. Pearcey outlines a threefold test of any worldview to help get a grasp on what they mean for thought and life: Creation, Fall, and Redemption. Every worldview has some story of where everything came from – Creation. Then each worldview proceeds to tells us that something is wrong with human society – the Fall – and then each worldview offers a solution – Redemption. Using this tool you will be better able to diagnose a worldview and whether it speaks the truth.

The Importance of Beginnings

The second part of Pearcey's book discusses the vitally important controversy over evolution and how it is taught in our schools. There is a clear philosophical filibuster masquerading as science in classrooms around the country.

In the opening chapter of this section, she tells the all too familiar story of a religious young man who is confronted with evolution in the seventh grade. Seeing the immediate contradiction between this theory and the Bible, the young man receives no help from teachers or clergy. He is left thinking that his "faith" has no answers to his questions. By the time

he finishes school in Harvard, he is a committed atheist.{5}

The same story is repeated thousands of times every year. The faith of many young people has been wrecked on the shoals of Darwinism. Whoever has the power to define the story of creation in a culture is the *de facto* priesthood and largely determines what the dominant worldview will be.

On *Probe* we have discussed the problems of evolution and the evidence for Intelligent Design numerous times. Now Pearcey makes the case that this is far more than a scientific discussion. It is at the heart of the culture war we are immersed in. Darwinism has had a far reaching impact on American thought, and we need a better grasp of the issue to better fight the battle we are in.

To show the prevalence of naturalistic Darwinian thinking Pearcey quotes from a Berenstain Bears book on nature titled *The Bears Nature Guide*. "As the book opens, the Bear family invites us to go on a nature walk; after turning a few pages, we come to a two-page spread with a dazzling sunrise and the words spelled out in capital letters: Nature… is all that IS, or WAS, or EVER WILL BE."{6} Clearly this is presented as scientific fact and should not be doubted.

Pearcey guides the reader through a well presented description of the major problems with the evidence concerning Darwinism. But more importantly, she clearly shows that the problem is not just the evidence. Most Darwinists accept the meager evidence because their worldview demands it. Naturalism requires a naturalistic story of creation, and since they are convinced of naturalism, some form of evolution must be true. She quotes a Kansas State University professor as saying, "Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not naturalistic."{7}

Pearcey goes on to show that Darwinism has continued to

progressively influence nearly all realms of intellectual endeavor. From biology to anthropology to ethics to law to philosophy to even theology, Darwinism shows its muscle. Darwinism is indeed a universal acid that systematically cuts through all branches of human thought. We ignore it at our peril.

How Did We Get in This Mess?

Nancy Pearcey titles the third section of her book, “How We Lost Our Minds.” She begins with a typical story of conversion from sin of a young man named Denzel. As Denzel seeks to grow and understand his newfound faith, he is stymied by leaders who can’t answer his questions and is told to just have faith in the simple things.

When Denzel gets a job, he is confused by those from other religions and cults who all seem to have answers for people’s questions. Only the Christians are unable to defend themselves from skeptics and believers of other stripes. Eventually he finds work at a Christian bookstore and finds the nectar he has been hungry for. But he had to look and look hard. Denzel has learned that many in the evangelical movement have a largely anti-intellectual bias.

Where did that come from? Today one can still hear preachers of various stripes make fun of those of higher learning whether philosophers, scientists, or even theologians. The root of this anti-intellectualism is found in the early days of our country. America was founded by idealists and individualists. Many had suffered religious persecution and were looking for someplace to practice their faith apart from ecclesiastical authority. The democratic ideals of the original colonies and the newly independent United States of America seemed like just the right place.

When the early American seminaries became infected with the

theological liberalism spawned by the Enlightenment, many rebelled against any form of church hierarchy, believing it couldn't be trusted. With the opening of the great frontiers, great opportunities for evangelism sprouted at the same time. Out of this came the First Great Awakening. The early revivalists directed their message to individuals, exhorting them to make independent decisions, Jonathan Edwards being a notable exception. Emotional and experiential conversions brought bigger crowds. Some began to even see a formula that brought about large numbers of conversions.

There arose a suspicion that Christianity had become hopelessly corrupted sometime after the apostolic age. The task at hand was to leapfrog back 1,800 years to restore the original purity of the church. Suddenly, the great works of Augustine, Aquinas, Luther, Calvin, and others were seen as unnecessary.{8} Evangelicals were cut off from their historical and theological roots. The evangelical movement as a whole became focused on rugged American self-interest and self-assertion, a strong principle of Darwinian naturalism.

This is still evident today in the prevalence of church-hoppers. Many view their church through an individualistic grid which says if the church leadership doesn't do things the way I would prefer and doesn't listen to me, I will take my family and go elsewhere.

The roots of anti-intellectualism run deep and find surprisingly fresh support from Darwinian naturalism. So how do we recover?

Living It Out

In the final chapter of *Total Truth*, Pearcey rings out a call to authenticity, not just with respect to the intellectual underpinnings of the Christian worldview, but also to how we live it out.

On the final page she cites a Zogby/Forbes poll that asked respondents what they would most like to be known for. Intelligence? Good looks? Sense of humor? Unexpectedly, fully one half of all respondents said they would most like to be known for being authentic.

Pearcey concludes: "In a world of spin and hype, the postmodern generation is searching desperately for something real and authentic. They will not take Christians seriously unless our churches and parachurch organizations demonstrate an authentic way of life – unless they are communities that exhibit the character of God in their relationships and mode of living."{9}

For most of the chapter Pearcey highlights examples of both sides of this call, people and ministries who claim Christ but use the world's naturalistic methods, particularly in fund-raising, marketing, and focusing on a personality rather than the message. She also points to people such as Richard Wurmbrand and Francis Schaeffer who lived out their Christian worldview without flashy results and hyped conferences and campaigns.

Most of us at Probe Ministries were heavily influenced by Francis Schaeffer, his ministry at L'Abri Switzerland, and his books. Many Christians whose youth spanned the turbulent '60s and '70s found Schaeffer a glowing beacon of truth and relevance in a world turned upside down by protests, drugs, war, crime, racism, and skepticism. Essentially, Schaeffer believed the gospel to be total truth. If that was the case, then living by a Christian worldview ought to be able to give real answers to real questions from real people.

We believe that what the postmodern world is searching for, what will most satisfy its craving for authenticity, is the person of Jesus Christ. They can only see Him in our lives and our answers to real questions. Our Web site at Probe.org is filled with the total truth of the Christian worldview. In our

"Answers to E-Mail" section you can see authenticity lived out as we answer real questions and attacks with truth, respect, and gentleness.

We're certainly not perfect. We have much to learn and correct as we search out the answers to today's questions. We struggle with the funding and marketing of our ministry using methods that work but do not manipulate, coerce, or misrepresent who we are and what we do. Nancy Pearcey has challenged all of us in ministry, no less those of us at Probe Ministries, to always put Jesus first, people second, and ministry third.

Notes

1. Phillip Johnson, in the Foreword to Nancy Pearcey, *Total Truth: Liberating Christianity from Its Cultural Captivity* (Wheaton, Ill.: Crossway Books, 2004), 11.
2. Pearcey, 19.
3. Christopher Reeve quoted by Pearcey, 22.
4. Pearcey, 97-98.
5. Ibid., 153-154.
6. Ibid., 157.
7. Ibid, 168.
8. Ibid., 280-281.
9. Ibid., 378.

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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

1. Jonathan Wells, *Icons of Evolution* (Washington, DC: Regnery Pub., 2000), 82.
2. David Quammen, "Was Darwin Wrong?," *National Geographic* November, 2004: 13.
3. Wells, 88.
4. Ibid., 97.
5. Quammen, "Was Darwin Wrong?," 9.
6. Ibid., 12.
7. Lester, Lane P., Raymond G. Bohlin, and V. Elving Anderson, *The Natural Limits to Biological Change* (Dallas: Probe Books : Distributed by Word Pub., 1989).
8. Merriam-Webster Inc., *Merriam-Webster's Collegiate Dictionary,* 10th ed. (Springfield, Mass: Merriam-Webster, 1996).
9. Quammen, "Was Darwin Wrong?," 13.
10. Tim Berra, *Evolution and the Myth of Creationism* (Stanford, Calif.: Stanford University Press, 1990), 117.
11. Edmund B. Wilson, "The Embryological Criterion of Homology," pp.101-124 in Biological Lectures Delivered at the Marine Biological Laboratory of Wood's Hole in the Summer Session of 1894 (Boston: Ginn & Company, 1895), p. 107.
12. Wells, *Icons of Evolution,* 73.
13. Quammen, "Was Darwin Wrong?," 12.
14. Ibid., 13.
15. Stephen J. Gould, "Evolution's Erratic Pace," *Natural History* 85(5).
16. Quammen, "Was Darwin Wrong?," 25.
17. Charles Darwin, *On the Origin of Species by Means of*

Natural Selection (New York, New York: The New American Library of World Literature, Inc., 1958), 287.
18. Quammen, "Was Darwin Wrong?," 20.
19. Ibid., 21.

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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.{1} 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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“Did the Human Genome Project Prove that Darwin Was Right?”

Help! I read Arthur Caplan’s article “Darwin Vindicated!” about the results of the Human Genome Project and it is seriously shaking my faith!

Caplan has never been a friend of Christians or creationists. In this inflammatory article, designed to stimulate public opinion, he has outdone himself. If Darwin were alive today, he would be astounded and humbled by what we now understand about the human genome and the genomes of other organisms. In some respects, it is difficult to know where to begin. So let’s just pick a few of the more glaring statements to help us understand that little else should be trusted.

First, he says, “Eric Lander of the Whitehead Institute in Cambridge, Mass., said that if you look at our genome it is clear that evolution must make new genes from old parts.”

While it may be true that we can see some examples of shared sequences between genes, it is by no means true that we see wholesale evidence of gene duplication throughout the genome. According to Li, et. al., (*Nature* 409, 15 Feb 2001:847-848) less than 4,000 genes belong to superfamilies that show sequences sharing at least 30% of their sequence. Over 25,000 genes demonstrated less than 30% sequence identity, indicating that as much as 62% of the human genes mapped by the Human Genome Project were unique, i.e., not likely the result of gene duplication. Determining that similar genes are the result of gene duplication is tricky business, not the least of which is trying to find out just how duplicated genes (which does occur) ever arrive at a new function. There are lots of guesses out there, but no observable mechanism exists at this time.

Second, he says, “The core recipe of humanity carries clumps of genes that show we are descended from bacteria. There is no other way to explain the jerry-rigged nature of the genes that control key aspects of our development.”

Not everyone agrees. The complexity of the genome does not mean necessarily that it has been jerry-rigged by evolution. There is still so much we do not know. Caplan is speaking more out of ignorance and assumption than data. “Junk DNA” used to be a common term in genetics circles. Since only about 1.5% of the total human genome sequence codes for actual genes and proteins, the rest was thought to be junk, useless DNA. The term “Junk DNA” is rarely used in academic papers anymore because much of this “junk” is now known to have a purpose, usually a regulatory function. Even the highly repetitive elements are demonstrating patterns that indicate some kind of function. Listen to this comment from Gene Meyers, one of the principal geneticists from Celera Genomics:

> “What really astounds me is the architecture of life,” he said. “The system is extremely complex. It’s like it was designed.” My ears perked up. Designed? Doesn’t that imply a designer, an intelligence, something more than the fortuitous bumping together of chemicals in the primordial slime? Myers thought before he replied. “There’s a huge intelligence there. I don’t see that as being unscientific. Others may, but not me.” (“Human Genome Map Has Scientists Talking About the Divine – Surprisingly low number of genes raises big questions,” Tom Abate, Monday, February 19, 2001, *San Francisco Chronicle*)

Jerry-rigged? Hardly! Confusing at the moment? Certainly! But more likely to reveal hidden levels of complexity than messy jerry-rigging.

Finally, Caplan says, “No one can look at how the book of life is written and not come away fully understanding that our genetic instructions have evolved from the same programs that

guided the development of earlier animals. Our genetic instructions have been slowly assembled from the genetic instructions that made jellyfish, dinosaurs, wooly mammoths and our primate ancestors."

This comes partly from the documenting of fewer genes (30,000-45,000 genes instead of the expected 100,000 or more) and the fact that some of these genes are indeed very similar in nearly all species looked at. Are there similarities? Certainly! Are the similarities only explainable by evolution? Not at all!

First, the fewer genes are not a given number yet since the computer programs used to look for new genes relied on already known gene sequences to spot potential genes. Only crude estimates were used for the possibility of completely novel genes. Even if the number is correct, this means that the organization of the genome is as important as the actual genes. We already know that many genes can be used to make several different proteins through complex patterns of regulation. This only raises the stakes for evolution. More organization, more complexity are the hallmarks of design, not messy natural selection.

Also even though we only have two or three times as many genes as a fruit fly, Svante Paabo, writing in *Science* (Feb. 16, 2001, vol 291, p. 1219) said, "A glimpse of what this will show us comes from considering the fact that about 26,000 to 38,000 genes are found in the draft version of our own genome, a number that is only two to three times larger than the 13,600 genes in the fruit fly genome. Furthermore, some 10% of human genes are clearly related to particular genes in the fly and the worm."

Basic cellular processes require many of the same proteins and therefore the same genes. Even if flies and humans are not related, why would these genes be expected to be dissimilar? Human engineers frequently reuse common elements because they

work. Besides, Paabo states that only 10% of the genes show any relationship. That means 90% do not. Far too much attention has been focused on the similarities and not enough on the differences. I welcome a sequence of the chimpanzee genome because I expect that among the many striking similarities, there will be uniquenesses unexplainable by Darwinian natural selection.

Arthur Caplan simply shows himself to be a part of the evolutionary establishment that appears to be worried by the inroads of intelligent design theory and is fighting back using only authority and bluster. "If I, Arthur Caplan, a bioethicist and Ph.D., say something loud enough and forcefully enough, some will believe it simply because of the position I hold." This strategy is slowing falling apart as the clear and ever increasing weight of the evidence causes more and more people to say, "Wait a minute, these guys (Phil Johnson, William Dembski, Mike Behe, Jonathan Wells, etc.) aren't dummies. Surely they can't be dismissed as easily as that." The bluster and appeals to authority are wearing thin and some are asking hard questions. Some will stop and begin to reevaluate; others, like Caplan, will only shout a little louder and ultimately lose credibility.

Stay tuned.

Respectfully,

Ray Bohlin
Probe Ministries

Cracking of human genome confirms theory of evolution
By Arthur Caplan, Ph.D.
SPECIAL TO MSNBC

Feb. 21, 2001 — The media flubbed the headline for the biggest news event in the past 50 years of science. The reporters and TV talking heads who crammed the Washington,

D.C., press conference on Feb. 12 did understand that the details they were hearing about the human genome offered the story of a lifetime. But, they missed the real headline. Their stories should have simply said, “Darwin vindicated!”

Most reporters ballyhooed the fierce competition between scientists working for the publicly funded Human Genome Project and those employed by the privately funded Celera Genomics Corporation of Rockville, Md., to gain credit for the discovery. Others wondered about the financial implications of allowing human genes to be patented.

Still other headlines were meant to give us pause about whether it would be good or bad to know more about the role genes play in determining our health. Knowing more about our genes, after all, might not be so great in an era in which there is not much guarantee of medical privacy but a pretty good chance of discrimination by insurers and employers against those with “bad” genes.

There were even a couple of headlines that suggested that humanity should not be quite so arrogant since we do not have as many genes as we thought relative to other plants and animals. In fact, as it turns out, we have only twice as many genes as a fruit fly, or roughly the same number as an ear of corn, about 30,000. Reductionism may not be all that it has been cracked up to be by molecular biologists.

But none of these headlines capture the most basic, the most important consequence of mapping out all of our genes. The genome reveals, indisputably and beyond any serious doubt, that Darwin was right—mankind evolved over a long period of time from primitive animal ancestors.

Our genes show that scientific creationism cannot be true. The response to all those who thump their bible and say there is no proof, no test and no evidence in support of evolution is, “The proof is right here, in our genes.”

Eric Lander of the Whitehead Institute in Cambridge, Mass., said that if you look at our genome it is clear that evolution must make new genes from old parts.

The core recipe of humanity carries clumps of genes that show we are descended from bacteria. There is no other way to explain the jerry-rigged nature of the genes that control key aspects of our development.

No one can look at how the book of life is written and not come away fully understanding that our genetic instructions have evolved from the same programs that guided the development of earlier animals. Our genetic instructions have been slowly assembled from the genetic instructions that made jellyfish, dinosaurs, wooly mammoths and our primate ancestors.

There is, as the scientists who cracked the genome all agreed, no other possible explanation.

Sure the business side of cracking our genetic code is fascinating. And we all need to be sure that our government does not leave us in the genetic lurch without laws to ensure our privacy and protect us against genetic discrimination.

All that, however, is concern for the future. Right now the big news from mapping our genome is that mankind evolved. The theory of evolution is the only way to explain the arrangement of the 30,000 genes and three billion letters that constitute our genetic code.

The history of humanity is written in our DNA. Those who dismiss evolution as myth, who insist that evolution has no place in biology textbooks and our children’s classrooms, are wrong.

The message our genes send is that Charles Darwin was right.

Arthur Caplan, Ph.D., is director of the Center for Bioethics at the University of Pennsylvania in Philadelphia.

“How Should I, as a Non-Christian, React to Creationist Claims?”

Hello, I’m a French science student interested in the creation/evolution debate. I have had no religious upbringing, and don’t take the Gospel as gospel truth, so I guess I must be an Evil Darwinist. Where I live, there doesn’t seem to be a great “debate” about evolution: I haven’t heard of any creationist scientists, besides from when I find Religious sites on the Internet. So I guess we haven’t yet been blessed with Pseudoscientific Creationists. True we have fanatics, but they’re Catholic and tend to be old Nazis dressed in black who want to go back to saying Mass in Latin, so don’t even go near calling themselves scientists. OK I’m being facetious

Anyway, how do you advise me, a non-christian, to react to creationist scientific claims? I hope you’ll provide an answer other than “convert to Christianity” – you won’t get away that easily: If your claims are scientifically sound, I should be able to accept that. However I often find them a mere imitation of the scientific method, a rational method I understand and respect more than your personal interpretation of the Bible.

By the way I worked on Genetic Algorithms a little (programs using genetic mechanisms to solve specific problems), and have therefore witnessed how complexity and ingenious patterns can arise out of chaos – and how the dominant pattern will switch

in a fairly short time, not showing so many intermediate genomes (punctuated equilibrum, generally used to explain holes in the fossil reccord). I am aware that you don't seem to disagree with microevolution, but I don't believe that "micro-" and "macro-" evolution mean anything. You seem only to use that definition by defining "macroevolution" as what can't be witnessed directly at our scale, and is therefore false. Why not "micromechanics" and "macromechanics"?: We can't prove that planets follow Newtonian mechanics, therefore the sun goes around the moon, 'cos I think the Bible says so.

Anyway, what should I think of your site? It seems cunningly made, maybe even honest. I wouldn't mind discussing this.

PS: I hope I get a better answer than "Go look at our site – it contains all the answers you need".

PPS: I hope you don't get too much of these. Actually I wish you get a lot and read them all. I don't want to be a nuisance, I'm just curious.

Thank you for your interesting message. I am glad to know a little of your background and familiarity with our site. I will therefore assume a few things as I talk with you and rely on you to let me know if anything needs clarification. I certainly do believe that the Intelligent Design movement has something to offer science today. I think the contributions of Michael Behe and William Dembski in their books, *Darwin's Black Box* and *The Design Inference,* lay the critical theoretical and evidential groundwork for a scientifically workable theory of design. It is crucial to realize that this does not mean a complete overhaul of science. Design is only meant to allow for design to be a legitimate hypothesis when addressing questions of the origin of complex systems. Some systems will carry the earmarks of design and some will not.

Behe's concept of "irreducible complexity" claims to identify molecular machines within cells that require a design

hypothesis due to the fact that they are composed of multiple parts which rely on each other for any activity. Our own experience tells us that when we see such things, like a mousetrap, an intelligence was necessary to put it together. Even things as ridiculous as a Rube Goldberg machine, inefficient and wasteful as they appear, are still designed. Arguments about the intent and intelligence of the "designer" are theological and superfluous to the scientific merit of the hypothesis.

Dembski's emphasis on complex specified information being an indicator of design is another crucial piece of the puzzle. The DNA code is both complex and specified. All other codes we know of from experience require an intelligence to bring them about. These codes may operate on their own once in existence, but require intelligence to put them together. Now this does not in itself require an intelligence to bring about the DNA code, but it should at least be a viable option. Science will currently categorically rule out this possibility since it does not propose a naturalistic process for bringing about the DNA code. I believe this is done out of a philosophical prejudice as opposed to a legitimate scientific problem.

The connections between irreducible complexity and intelligence, and complex specified information and intelligence, are the crucial components of a viable theory of Intelligent Design (ID). I think there is plenty of data from molecular biology and astronomy (fine-tuning parameters of the universe) which already make Intelligent Design a worthwhile scientific pursuit.

Even Richard Dawkins admits that biology is the study of complicated things that give the appearance of having been designed for a purpose. Maybe it isn't just an appearance. If they have been designed for a purpose, we should be able to tell and it should fall under the umbrella of science since science is primarily a search for truth.

Genetic algorithms are still operating from a computer program utilizing the designed computer itself to arrive at its designs. In other words the potential for design is built into the program and the computer. The genetic algorithm program willl not write itself and the program will not run itself apart from the computer, a designed machine.

This perhaps provides a starting point. There are other places on our site that can give you some more details but this should do for now.

BTW, the micro-macro distinction is one that many evolutionists recognize and use so it is not just some creationist invention. But you are correct that it does have to do with the distinction between the minor changes we see happening all around us and the unobserved changes that must have occurred in the past which there is often no discernible fossil evidence for. There is also an embryological component to the distinction. Currently observed microevolutionary changes are all changes that would occur late in embryological development; the overall body plan is not affected. Body plans are determined very early in embryological development which, if all life is descended from a common ancestor, must have also changed in the past. But nearly all mutations observed that occur early in development result in catastrophic deformities. You can’t just add up microevolutionary, late development changes and eventually get an early developmental, body plan mutation. They are very different things.

Respectfully,

Dr. Ray Bohlin
Probe Ministries

“Your Articles on Intelligent Design Have Given Me Hope!”

Wow! I feel like I have hope! Lately I’ve seriously been having doubt about the Christian faith. A big reason for this is the creation/evolution controversy. I’m a freshman at Baylor University. I’ve been working on my research paper on Christians’ reservations on evolution. It’s a topic I picked. . . I thought it might help me out with my struggle. Thank you so much for the articles that you have posted on the Probe Ministries website. After all the negative things I’ve read about evolution and even Jesus, denying that He was even a historical person, I feel more hopeful now. I feel like there’s something with this intelligent design theory! It’s a much better sounding alternative than some of the other stuff I’ve read.

Thanks again!