Apologetics and the Age of the Universe

Appendix B: Apologetics and the Age of the Universe

Note: This is one of two appendices for Steve Cable's article Are We Significant in This Vast Universe?

Is the apparent age of the universe a critical issue for Christian apologetics? I would argue that when we make it a critical issue, we are likely to add another barrier to belief rather than tearing down barriers against belief in Jesus Christ as our Savior.

How should we look at the age of the universe in applying emerging scientific observations in defending our faith? In this appendix, we will take a brief look at this question.

The vast majority of theologians and researchers agree that the actions of the inorganic world are normally governed by a set of physical laws and forces: e.g. gravity, subatomic forces, magnetism, and light waves. By understanding these laws, we can predict both the future and past behavior of physical objects ranging from galaxies to our solar system to airplanes to golf balls. As Christians, we recognize that our Creator God can and does intervene at times to suspend or alter these laws in order to accomplish His purpose: e.g. Jesus walking on the water, healing of the sick. Thus, one of the ways to recognize the presence of our Creator is when we use our understanding of these laws to model backward from our present state and we come to a state in the past that is inconsistent with our current reality. In other words, it appears that some power must have intervened with the natural processes we currently observe because it would be practically

impossible to get to our present state simply through natural processes.

Following this logic, there is a growing body of evidence from scientific observation consistent with the following two hypotheses:

1. Life as it exists on this earth is the result of the intentional work of an intelligent designer

2. Humans are significant to the designer of this universe

These two hypotheses are obviously consistent with the Bible. As apologists these hypotheses are very important because they support a biblical prerequisite for coming to God:

> And without faith it is impossible to please Him, for he who comes to God must believe that He is and that He is a rewarder of those who seek Him (Heb 11:6).

According to this passage, in order to come to God, we must believe that a God exists and that He wants us to seek Him. In many cases, if we can debunk the popular notion that science proves that there is no Creator God who cares about us, we can open the door to see what the Bible tells us about Jesus Christ, His death and resurrection.

The empirical evidence supporting these two hypotheses is strong whether the earth is 13.7 billion years old or 6,000 years old. However, some of the evidence for the significance of life on earth is based on looking at what it would take to get from an ancient creation event, e.g. big bang, to the current, observable universe. Should we ignore that evidence because it does not assume a young universe interpretation of Genesis 1? Or should we use this evidence to show that even the oldest estimated age for our universe still demands a transcendent Creator to account for life on this earth? I suggest that we don’t have to make the age of the universe the central point in defending our faith against those who do not

believe in our Creator God and who need to understand that God sacrificed His Son, Jesus to provide for their redemption from this decaying universe.

One of the areas where this tension between fixed physical laws and supernatural intervention applies is in scientific theories for the origin of the universe. The prevailing scientific view is that the universe is expanding at an increasing rate. Combining this view with what we know about the relevant natural forces implies that all the matter in the universe began expanding from a single point approximately 13.7 billion years ago. If we take as an axiom that the correct interpretation of general revelation through scientific observation and special revelation through the Bible must be consistent, there are three possible situations consonant with that axiom:

1. The scientific data is incomplete, corrupted, or misinterpreted. There are many instances where the current prevailing view of science has been shown by new evidence to be wrong, so this is a definite possibility.

2. The universe is indeed expanding, but it is much less than 13.7 billion years old because it was created at a point where it was already spread out to near its current volume. This is the apparent age argument, i.e., when God creates a living being such as Adam, Adam is going to appear to be physically mature even when he was only seconds old. There are issues with applying this apparent age concept to the age of the universe. For example, we can observe supernovae that are hundreds of thousands of light years away. If the earth is less than 10,000 years old, then we are observing the explosions of stars that never really existed. Why would God want to confuse us in this way? Perhaps because these “past” supernovae are consistent with what would have happened to create the current state of our universe.

3. The interpretation of Genesis 1 as defining the time from

the beginning of the universe to the creation of Adam as literally 120 hours is not actually the intent of that passage. This interpretation issue is a continuing topic of debate among evangelical scholars who believe that the Bible is God's inerrant special revelation.

I can appreciate those who consider finding out which of these three alternatives is correct to be an important life issue. But, it seems clear that selecting the right answer is not a prerequisite for salvation (e.g. see Romans 10:9-10). I encourage Christians to understand how the current state of scientific knowledge can be used as a bridge to share the gospel. For a more detailed discussion of contrasting Christian views on the origins of the universe, see the article "Christian Views of Science and Earth History" on our website.

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Darwin's Doubt

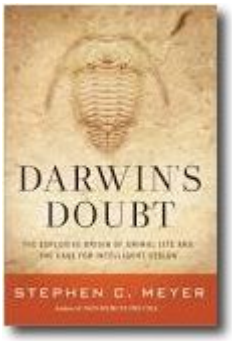
Dr. Ray Bohlin reviews Stephen Meyer's book Darwin's Doubt, *showing that the sudden appearance of complex animal forms in the Cambrian cannot be explained by evolutionary mechanisms.*

The Essence of the Cambrian Explosion



The fossil record of the Cambrian Period has been known as a problem for evolutionary theory since Darwin's *Origin of Species* in 1859. Darwin was aware of the sudden appearance of

complex animal forms in the Cambrian from his own collecting in northeastern Wales. Complex animal forms such as trilobites seemed to appear with geological suddenness with no apparent ancestors in older rocks below them.



In his 2013 book, *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design*{1}, Stephen Meyer quotes Darwin from the *Origin of Species*: "To the question of why we do not find rich fossiliferous [fossil-bearing] deposits belonging to these assumed earliest periods prior to the Cambrian system, I can give no satisfactory answer. . . . The case at present must remain inexplicable; and may truly be urged as a valid argument against the views here entertained."{2}

Meyer provides some of the historical context of this period and Darwin's disagreement with the eminent paleontologist of his day, Louis Agassiz of Harvard. Darwin's solution to his dilemma was to suggest that the fossil record is incomplete and that he fully expected that abundant fossils would be found to indicate the evolutionary origin of these Cambrian animals. However, in the intervening century and a half, the problem has not been resolved. If anything, as we have gained more knowledge of animal life and development and found numerous deposits of periods just prior to the Cambrian, the problem is worse than Darwin perceived.

Early in the 20th century, a rich Cambrian deposit was found in the Canadian Rockies, the Burgess Shale. Entirely new organisms were found exquisitely preserved, many with soft-body parts well preserved. Then in the mid-1980s, an even earlier Cambrian deposit was found in Chengjiang, China. This deposit revealed an even richer diversity of organisms than the Burgess Shale, and even finer soft-body preservation—even down to eyes, intestines, sensory organs and stomach contents.

Later work in different parts of the world had timed the

Cambrian explosion to a roughly 5-10 million year time frame around 530 million years ago [with the Cambrian period itself beginning 543 million years ago] in the evolutionary time frame. Though that's a very long time, even for evolution, it's practically instantaneous when discussing the origin of entirely new body plans. As Meyer faithfully recounts, Darwin's dream of an ever-increasing rise in complexity and diversity is shattered by the geologically abrupt appearance of both complexity and diversity.

What has been referred to as "Darwin's doubt" could be more aptly referred to as "Darwin's headache." In this article I will explore some of the additional problems this sudden explosion of animal body plans poses for evolution. While committed evolutionary materialists pretend to not be disturbed by these developments, those with open minds are questioning this long-held theory and giving new consideration to Intelligent Design.

Evolutionary Explanations of the Cambrian Explosion

Even Darwin recognized the Cambrian as a puzzle for his theory. Darwin hoped that further exploration of fossil-bearing strata would reveal the ancestors of the Cambrian animals.

In the early 20th century, Harvard paleontologist, Charles Walcott, found a new Cambrian deposit in the Canadian Rockies, the Burgess Shale. The Burgess Shale contained new creatures never seen before and was able to preserve some soft-body parts, also never seen before. This proposed an even greater problem than Darwin knew. Older deposits were still not revealing the ancestors of the Cambrian, but now there was even more diversity and novelty than anyone had imagined. The discovery of a predator, the up-to-meter-long *Anomalocaris*, demonstrated there was a well-defined ecosystem with plant

producers, plant consumers and carnivores.

The origin of the Cambrian fauna seemed to turn Darwin's theory on its head. Darwin expected all animal life forms to be descended from a single common ancestor through a lengthy process of descent with ever-so-slight modification. But these Cambrian novelties appeared quite suddenly with no ancestors. That is not evolution as Darwin envisioned it. Walcott suggested two reasons for the disparity. First, he suggested that the immediate Pre-Cambrian deposits containing the Cambrian ancestors were to be found on the ocean floor. Subsequent off-shore drilling for oil provided a unique opportunity to test this hypothesis. But most of the sea floor is much younger than the Cambrian. If there were Pre-Cambrian deposits, they no longer exist.

Walcott also tended to be a "lumper" in taxonomic terms. That means he fit fossils into already existing categories whether they fit well or not. This appeared to minimize the explosive part of the Cambrian. But additional field excavations in the Burgess Shale, as well as in different parts of the world, revealed that many of these Cambrian creatures were unique and that their descendants are not known today—they are extinct. The novelty of Cambrian forms is more pronounced than ever.

The late Stephen J. Gould of Harvard famously described the uniqueness of these Cambrian creatures when he said; "Imagine an organism built of a hundred basic features, with twenty possible forms per feature. The grab bag contains a hundred compartments, with twenty different tokens in each. To make a new Burgess creature, the Great Token-Stringer takes one token at random from each compartment and strings them together. Voila, the creature works—and you have nearly as many successful experiments as a musical scale can build catchy tunes."{3}

Fossils have been found in sediments older or below the Cambrian but these fossils do not appear to be ancestors of

the Cambrian creatures. They were also quite unique and most are now extinct. The mystery remains.

Libraries of New Genetic Information Needed: Pronto!

All Darwin had to examine were the unique animals found in Cambrian deposits. He knew nothing of genetics and the need for new genetic information.

Paleontologist James Valentine has gone so far as to say that probably all the living animal phyla had their beginning in the Cambrian period, over 500 million years ago. We do find multi-celled animal fossils 20-30 million years before the Cambrian, but only sponges seem to resemble anything we find in these deposits.

A phylum is an upper level of classification. For instance, all vertebrates are in the same phylum. Insects, crustaceans, and spiders are also in the same phylum. The phylum represents organisms with a distinct body plan though there may be many variations on that theme. In order to have all these new body plans or phyla appear in the Cambrian in a geological instant, you need a lot of new genes or genetic information. Different types of cells are needed. New genes are needed to grow new body plans out of a single-celled fertilized egg. With different cell types come different kinds of functions and cell types each needing specific gene products to give them their unique functions.

When protein sequence and gene sequence comparisons were begun in the late 70s, there was an expectation that comparing gene sequences would solve relational puzzles among living organisms but that by comparing genes from different phyla, it could be determined how phyla were related. The Cambrian fossils offer no such clues since most animal phyla appear at nearly the same time. But several decades of gene sequence comparison studies have revealed no consistent evolutionary

scheme. As Meyer summarizes, “Many other studies have thrown their own widely varying numbers into the ring, placing the common ancestor of animals anywhere between 100 million years and 1.5 billion years before the Cambrian explosion.”{4}

Meyer does a great job of articulating why there would need to be an information explosion along with the Cambrian explosion. Accounting for all this new information, in a relatively short period of time, by known processes is a herculean task. If evolution solely depends on a Darwinian model, then mutation and natural selection must be able to account for the explosive rise of new genes and regulatory gene networks during the Cambrian. Meyer spends several chapters working this through. Achieving the extreme specificity of proteins through the slow, plodding, processes of mutation and natural selection appears impossible.

In the next section I address an even greater difficulty of the Cambrian explosion. Darwinism has always needed a slow gradual accumulation of genetic change. However, with the relatively quick appearance of very different forms of animals in the Cambrian, is Darwinism up to the task?

The Exasperating Problem of New Body Plans

Darwin understood nothing about how animal body plans are laid out and built in the early embryo.

Since Darwin’s time we have learned a great deal. And none of what we have learned offers any help in deciphering how all these new body plans originated in such a short geological time period in the early Cambrian. The overall structure and shape of an organism is laid out early in embryonic development. Particular genes necessary for development are tightly controlled in when and how they are expressed. These genetic regulatory programs operate only in early development and they limit the possibilities of the final form of the

organism.

Biologists use a classification term, phylum, to refer to the largest category of animals and plants. Humans belong to the Phylum Chordata, which includes all the vertebrates. Insects are in the Phylum Arthropoda, which includes crustaceans and spiders. These two phyla possess very different body plans, and the genetic programs to build these plans are very different in the earliest stages, even in the first few divisions of the fertilized egg. The Cambrian demonstrates that these very different body plans arise in less than ten million years of time geologically. Is that possible? All Darwinism has to work with as the source of genetic variation, are mutations.

In 1977, French evolutionist Pierre Paul Grassé noted that mutations don't provide any real evolutionary change. Mutations only seem to provide only a slightly different variety of what already existed.{5} Twenty years later, a trio of developmental biologists noted that modern evolutionary theory explained well how the already fit survive and reproduce. But just how organisms came to be that way, the modern theory seemed silent.{6} Evolutionary biologist Wallace Arthur explained that modern textbooks told the same stories about how finch beaks and the color of moths changed to suit their environment, but nowhere was it discussed how the organism as a whole came to be so integrally functional.{7}

These problems have been further addressed in recent years but nothing seems to propose any clear answers as to how new body plans could have appeared in such a short span of evolutionary time.

Steve Meyer summarizes his review of these difficulties in the light of the Cambrian saying, "The Cambrian explosion itself illustrates a profound engineering problem the fossil data does not address—the problem of building a new form of animal life by gradually transforming one tightly integrated system

of genetic components and their products into another."{8}

An Opportunity for Intelligent Design

I have documented how the sudden appearance of new forms in the Cambrian creates mysteries in terms of the fossils, genetics and developmental biology.

In chapter 18, Meyer turns his attention from the observation that modern evolutionary theories do not explain the sudden appearance of all the major animal groups in a short burst of geologic time, to what can explain the Cambrian Explosion. He carefully argues that Intelligent Design has all the causal power to bring about what is needed in the Cambrian.

Initially he summarizes the conclusions of two important evolutionary students of the Cambrian, Douglas Erwin and Eric Davidson. Together these scientists have listed a few of the observations any evolutionary cause must explain. First, whatever the cause of the Cambrian Explosion, it must be able to generate what is referred to as a top-down pattern. That is, the broad general categories of animals appear before there is any refinement in these characters. Second, the cause must be capable of generating new biological forms relatively rapidly. Third, this cause must be capable of constructing, not just modifying, complex genetic regulatory circuits.

They also note, as Meyer reports, that no existing theory of evolutionary change can accomplish any of these necessary events.{9} Davidson and Erwin are quite insistent that the processes operating in the early Cambrian were fundamentally different from anything operating in nature today. That's a tall order. But Meyer adds a few more prerequisites for a cause for the Cambrian Explosion. In addition to the need for rapid development of a top-down pattern, new body forms and creation of new genetic regulatory circuits, Meyer observes that this cause also needs to generate new digital information in the DNA and new structural information that cells use

routinely. There also needs
to be the development of new types of information that are precisely coordinated to specify brand new body plans.{10}

A designing intelligence may be the only sufficient cause that can accomplish all of these events within any time frame, let alone the 5-10 million years of the Cambrian Explosion. Meyer concludes the chapter by writing, "The features of the Cambrian event point decisively in another direction—not to some as-yet-undiscovered materialistic process that merely mimics the powers of a designing mind, but instead to an actual intelligent cause."{11}

Clearly when all the evidence is reviewed as Meyer does, the conclusion of Intelligent Design is nearly impossible to avoid. To ask how a designing intelligence did all this is to insist on a materialistic explanation for an immaterial cause. More is yet to be discovered, but if the pattern holds, Intelligent Design will become even more robust in the future.

Notes

1. Stephen C. Meyer, *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* (New York: HarperCollins, 2013).

2. Charles Darwin, *The Origin of Species*, Chapter X (pp. 235, 252-254), quoted in Darwin's Doubt.

3. Stephen J. Gould, *Wonderful Life: The Burgess Shale and the Nature of History* (New York: W.W. Norton & Co., 1989), p. 217.

4. *Darwin's Doubt*, pp. 105-106.

5. Pierre-Paul Grassé, *Evolution of Living Organisms* (New York: Academic Press, 1977), p. 87.

6. S. Gilbert, J. Optiz, and R. Raff, "Review—Resynthesizing Evolutionary and Developmental Biology," *Developmental Biology* 173 (1996): 361. "The Modern Synthesis (Neo-Darwinism) 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."

7. Wallace Arthur, *Biased Embryos and Evolution*, (Cambridge: Cambridge University Press, 2004), p. 36. "Textbooks of evolutionary biology have for years trotted out the usual old stories about how birds' beaks evolve to match their food items, or how moths' colours evolve to match their background. But where are the equally detailed studies about the importance of one body part matching another."

8. *Darwin's Doubt*.

9. Ibid., p. 355.

10. Ibid., p. 358.

11. Ibid., p. 381.

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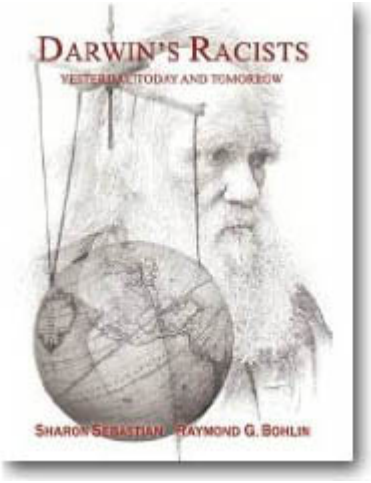
Was Darwin a Racist?

In some circles to even ask this question and impugn Darwin's integrity conjures up charges of secular blasphemy. After all, Darwin is well documented as holding views on slavery commensurate with the great William Wilberforce himself. Darwin was repulsed by any cruelty of humans on humans.

Darwin was by all accounts an affectionate husband, loving father, defender of the oppressed, and just an all round good and decent man. So how could one accuse him of racism? You

simply need to read his second major work on evolution, *The Descent of Man.*

As Benjamin Wiker makes clear in his recent biographical book, *The Darwin Myth: The Life and Lies of Charles Darwin,* Darwin insisted that his theory of natural selection and evolution be understood as a purely natural and undirected process. Consequently, he could only see humans and apes as the result of a real struggle for survival. By all accounts, humans were winning. There was also a severe struggle going on between the races of man.



I recently coauthored a book with Sharon Sebastian entitled *Darwin's Racists: Yesterday, Today, and Tomorrow*. In chapter three we discuss Darwin's explanation of the differences between men and apes from *The Descent of Man.*

In Chapter 6, On the Affinities and Genealogy of Man, Darwin argues that he expected the civilized races of men to fully exterminate the savage races of men in just a few centuries. He also expected the anthropomorphous apes [Ed. note: those most like humans] (gorillas and chimpanzees) to become extinct. As a result, he believed that the gap between humans and animals would eventually be much greater than exists. Darwin postulated that this higher form of man would come from the current Caucasian race. In his book, Darwin states that the current gap between apes and humans is between the gorilla, on the ape side, and the Negro or Australian aborigine, on the

human side:

> The break will then be rendered wider, for it will intervene between man in a more civilized state, as we may hope, than the Caucasian, and some ape as low as a baboon, instead of as present between the Negro or Australian and the gorilla.

Darwin's foremost German disciple, Ernst Haeckel, made even more dramatic statements. According to Haeckel, if you want to draw a sharp boundary between the human races and the apes, "you must draw it between the most highly developed civilized people on the one hand and the crudest primitive people on the other, and unite the latter with the apes." Elsewhere Haeckel identifies these cruder and primitive races as the Australian aborigines and the South African Bushmen, which he says, still live in herds, climb trees and eat fruit. According to Haeckel, certain more primitive groups of "people" are more ape than human.

Darwin certainly did not invent racism. Prejudice because someone is "other" than us has always been a part of human existence. What Darwin did provide was a scientific rationale that justified racial prejudice. Implicit in Darwin's struggle for existence is that some forms of a species would be more fit for the current environment than others. From Darwin's vantage point, the Caucasian or European race was well underway to surpassing the other "human" races because of their intelligence, culture, and superiority in war as demonstrated routinely in conflicts between Europeans and any other race or culture to that point.

Darwin's ideas were used to launch the first eugenics society in Britain headed by his cousin, Francis Galton. Darwin's son, Leonard, later served as President of the same society. Margaret Sanger drew her inspiration for what became Planned Parenthood from Darwin and saw a need to control the breeding of poorer and less fit humans.

If humans are a part of a naturalistic struggle for existence, then it logically follows that some tribes and races of humans will be more fit than others. And since with Darwin's help, we now understand this struggle, why not help it along by slowing down the breeding of those less fit? Or, as Hitler rationalized, eliminate them altogether.

To be sure, Darwin himself would likely have been horrified by the excesses of the early 20th century eugenics societies and the national excesses of Nazi Germany, Stalinist Russia, Mao's Cultural Revolution and Pol Pot's regime of extermination. But they all thought they were simply aiding and abetting the process of natural selection.

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The Effect of Origins on Society

Why Is the Subject of Origins Important?

Every worldview addresses the question, "Where did we come from?" The Christian worldview says that we are a special part of creation made in the image of God. A materialistic worldview says that we are the product of natural selection and random mutations acting on organisms. The Christian view of origins is called Creation; the materialistic view of origins is called Darwinism. The Christian worldview is based on faith in the creative work of God of the Bible. The materialistic worldview is based on faith in the creative

power of natural selection acting on mutations.

There are evidences for and against these worldviews from scientific research being conducted in the areas of intelligent design, evolutionary biology, genetics, mathematics, astronomy, and many other fields. However, people will often confuse the worldview with the scientific evidence. Worldviews are a way of explaining the evidence. For example, we see that during a drought birds with longer beaks are selected over birds with shorter beaks. This is an observation. Saying that this is evidence for natural selection's creative ability to make totally new types of creatures is an extrapolation based on a worldview. Just as there is a right and a wrong interpretation for observations, there are right and wrong worldviews. And one way to test for a worldview is whether or not it is livable.

So does your view of origins affect other areas of life than just science? Yes, these two views of origins have a profound effect on how we value people and how we view personhood and personal responsibility. Using John West's book *Darwin Day in America* as a resource, we will look at how the materialistic worldview has trickled down into areas of society that affect us every day.

West argues in his book that the logical end materialistic worldview leaves nothing for an ethical standard other than to survive. The materialistic worldview says that non-living chemicals came together to make genetic material which then made an organism and that organism evolved until we got human beings. This view claims that man is made from chemicals and is no more valuable than any other animal. The logical end to this perspective is that everything a man does is a result of his genes and his environment. He therefore has no choices or free will of his own. His actions are the result of natural selection acting on him. This has important consequences for how we deal with crime, personhood, the embryo, the infirmed, and education.

West says, “Darwin helped spark an intellectual revolution that sought to apply materialism to nearly every area of human endeavor. This new, thoroughly ‘scientific’ materialism affected the entire span of culture, from economics and politics to education and the arts”.{1} Darwin published *Origin of Species* one hundred fifty years ago, but it is in the mid-twentieth century that we begin to see how his theory has trickled down into society.

Crime and Responsibility

How does a materialistic worldview affect society? For one thing, a Darwinian view of man has changed our criminal justice system.

How are the courts and science related? In our culture, the scientists are the holders of truth and the courts are the arbiters of law. And while the idea that law coincides with truth is good and even biblical, the idea that scientists, and only scientists, are the ones who dictate truth is a dangerous position. If the pervading worldview in science is materialism, then a materialistic view of man is reflected in the courts.

According to a materialistic worldview, man is the product of his genes and his environment with no real ability to act differently than what his genes and environment would have him do. If this is the case, then how can he be held responsible for his crimes? Why not just blame bad genes or a bad home life? Often this is what is argued in the courts.

West describes the crux of the problem. In order to provide protection and have an orderly society, the criminal justice system needs to punish wrong behavior. But from a materialistic worldview, there is no moral foundation for individual responsibility. A materialist perspective does not blame the individual but their genes or the way that they were

raised (their environment). West outlines a history of criminals getting off in the name of very loose definitions of insanity, and other criminals undergoing treatment instead of punishment.{2} And the treatment, at times, amounts to something closer to coercion or torture.{3} Whether we are talking about being overly lenient by giving criminals excuses or coercing them to treatment, both diminish the value and dignity of the individual as a person.

The Christian view of man is that, although differences in our genetics or our environment may mean that we have different struggles or temptations than others, we are made in God's image. Therefore, just as God treats us with dignity by exacting punishment for our actions, so, too, do we treat people with inherent dignity by exacting punishment and allowing for atonement. The Darwinian view says that we are not responsible because we are a product of our genes, but it also says that we are not redeemable because we will remain flawed.

Our entire criminal justice system is based on the idea that man can be held accountable for his crimes, that he has a choice in what he does. Furthermore, it is based on the inherent dignity that every individual has, so that a wrong done to one individual must result in the wrong-doer being punished. This maintains equal dignity and value in both individuals.{4} However, this system crumbles under a materialistic worldview.

So man is a product of his genes and his environment, a view which, taken to its logical end, has conflicting and dangerous results for exacting justice in society. Now we turn to how this view of man affects how we treat others that are different from us and how we define "normal."

Personhood

At the beginning of the twentieth century, during the rise of the scientific revolution, the idea of atonement for a guilty crime changed to an idea of fixing a broken machine. Criminals were treated as if they were machines with broken parts, instead of individuals with value and free will, because scientists had supposedly found a materialistic cause for crime. Something in their genetic code went wrong, so many were subjected to some kind of institutionalization or treatment. As John West points out in *Darwin Day in America,* the idea is if science can explain the problem, then science can fix it.{5} One way that scientists attempted to fix this problem was to try to breed out the bad traits. Scientists in the '30s, '40s and '50s reasoned that bad behavior, stupidity, and emotional instability were passed down from parent to child just like physical traits, and the only way to cleanse our society of these ailments was to sterilize those who carry these traits.

It began with criminals being sterilized; then it turned to those who were mentally handicapped; then those who were deemed less intelligent, poor, or unproductive in society were sterilized. In hindsight it is easy to see how this slippery slope happened. One group changes the standards by which we value other groups. No longer is the foundation in the Judeo-Christian concept that all individuals have inherent value, but in the Darwinian concept that some are less valuable than others and deemed less worthy of life than the more "fit" in society. This was the breeding ground for what would become the eugenics movement. [Editor's note: Eugenics is the idea that the human race can be improved by careful selection of those who mate and produce offspring. The word comes from the Greek word *eugenes*, "well-born, of good stock," from *eu*– "good" + *genos* "birth."]

We saw the logical end of the eugenics movement in Nazi

Germany. Darwinism was not necessarily the cause for Nazi Germany, but eugenics was justified with a Darwinian view of man. This is an important picture of how one can promote one's worldview (and one's prejudices) in the name of science. Darwinism allows for race discrimination and even genocide. As West points out, "Historically speaking, the eugenics movement is important because it was one of the first—and most powerful—efforts to use science to expand the power of the state over social matters. Eugenists claimed that their superior scientific knowledge trumped the beliefs of nonscientists, and so they should be allowed to design a truly scientific welfare policy."{6}

Today this attitude is still seen when doctors, lawyers, and family members evaluate individuals based on their physical abilities and their cost to society. Oftentimes individuals are assessed based on their perceived "quality of life." Unfortunately, this usually reflects what the doctor, lawyer, or family member would hate to have happen to themselves than the actual desires of the individual in question. Judging others unworthy of life based on physical features or capabilities ignores the inherent value and dignity God has given man as being made in His image.

The Beginning and End of Life

We have looked at how a society that promotes a materialistic worldview results in a degraded view of personhood. This degraded view includes basing a person's value on how well they physically function and how much they cost society. However, from a Christian view, humans were created with a purpose and in the image of God. They have inherent value beyond their physical bodies.

How does a Darwinian view of man's origin affect the way we look at the most vulnerable in society—the embryo and the aged or infirmed?

West traces a historical record of the legalization of abortion and demonstrates why we have the debate about embryonic stem cell research today.{7} Darwinism is not the cause of the legalization of abortion and destruction of embryos, but it provided an ideology that allowed people to justify it. It began with a scientist named Haeckel who influenced Darwin. Haeckel discussed how all embryos go through stages of development and how the earliest stages look very similar to each other. In his famous drawings, he shows how a human embryo goes from a small fish-like creature that looks similar to other animal embryos, to a human-looking embryo. He said that the fetus goes through a mini version of evolutionary development.{8}

What conclusions were drawn from this? If the fetus is no more than a fish, then it is as ethical to discard it as it would be to discard a fish. The only problem with this idea is that it is now well-documented that Haeckel's drawings were faked, and the similarities were more contrived than real. Despite this finding, people still latched on to the concept and refused to accept that the fetus does not go through evolutionary stages. It is from this concept that many justify early stage abortion and embryonic stem cell research; the clump of cells or the mass does not look human.{9} This is an example of basing a person's value on their physical appearance and function.

Today we not only see this idea played out in the unborn, but also in the elderly and the infirmed. Many family members and doctors elect to end someone's life because they have deemed them less valuable. Again, the basis of this is on how well they physically function. One group is putting value on another group.

Both of these examples demonstrate how our culture has bought into a materialistic worldview which devalues the person that does not have certain physical characteristics. As Christians we value human life and believe that the embryo, the aged, and

the infirmed have inherent dignity despite how they might function or appear.

Education

We have been looking at how a Darwinian view of man led to a slow and steady dehumanization of man. Our view of origins affects other areas of life as well. In this section, we will address how a Darwinian view of man has influenced how we educate our children. A Darwinian view says that there is no absolute authority; there is merely survival of the fittest. In academics that means teaching based on what works, not on what is right.

One of the biggest influences on our educational system, both in public and private schools, has been John Dewey. As Nancy Pearcey points out in her book *Total Truth*, Dewey thought education should be like biological evolution where students construct their own answers based on what works best. Pearcey calls this "a kind of mental adaptation to the environment."{10} It is easy to see how this leads to moral relativism. Students are not taught character or values. Instead, they learn that an idea or a concept is deemed valuable if it works, not if it is right. Teachers are taught in certification classes to guide students along and help them to come up with their own moral code. Teachers are not allowed to punish students for wrongdoing, because they have no moral basis to do so, but are still expected to have an orderly classroom. In some cases teachers are not permitted to give a failing grade to a student who is genuinely failing. Also they are not permitted to give A's to good students for fear that they may not continue putting forth effort. Students are stripped of the concept of an objective standard or absolute morals, and by the time they are high school seniors, they are more educated in how to play the system than in reading, writing, or arithmetic. This is the very fruit of Dewey's pragmatism, and it continues through the university level.

When students are stripped of any set of beliefs and a moral foundation, they are left empty and ready to be filled with the pervading worldview of academia. What we end up with is a fully indoctrinated student with a materialistic worldview.{11}

Contemporary materialism's view of origins, known as Darwinism, has profound effects on our society. As Christians we need to be a light unto the world by showing that human beings are more than their genes and environment, that they have inherent value, and that there are moral foundations beyond survival of the fittest.

Notes

1. John West, *Darwin Day in America* (Wilmington, DE: ISI Books, 2007), 41-42.
2. Ibid., 73.
3. Ibid., 79-101
4. For a good article on capital punishment and human dignity see Kerby Anderson, "Capital Punishment," Probe, 1992, www.probe.org/capital-punishment/.
5. West, *Darwin Day*, 80.
6. Ibid., 162.
7 . Ibid., 325-335.
8. See Jonathan Wells, *Icons of Evolution* (Washington, DC: Regency Publishing, 2000), chap. 5.
9. Ibid., 330.
10. Nancy Pearcey, *Total Truth* (Wheaton, IL: Crossway Books, 2005), 239.
11. See Don Closson, "Humanist Psychology and Education" Probe, 1991, www.probe.org/humanistic-psychology-and-education/; Closson, "Grading America's Schools," Probe, 2002, www.probe.org/grading-americas-schools/; and Kerby Anderson, "Cultural Relativism," Probe, 2004, www.probe.org/cultural-relativism/.

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Is "Ida" a Missing Link?

On Tuesday, May 19, 2009, the very complete fossil of a small lemur-like animal, nicknamed Ida, was unveiled at the New York's American Museum of Natural History. The unveiling was accompanied by press releases touting a special to air on the History Channel on May 25th. Newspaper reports included headlines like, "Is 47 million year old fossil a missing link?" The History channel went even further in its hype:

> ***Scientists have discovered the oldest and most complete fossil of a human ancestor.***
>
> *An incredible 95 percent complete fossil of a 47-million-year-old human ancestor has been discovered and, after two years of secret study, an international team of scientists has revealed it to the world. The fossil's remarkable state of preservation allows an unprecedented glimpse into early human evolution. Discovered in Messel Pit, Germany, it represents the moment before anthropoid primates—the group that would later evolve into humans, apes and monkeys—began to split from lemurs and other prosimian primates. This groundbreaking discovery fills in a critical gap in human and primate evolution.{1}*

However, as is often the case, the facts behind the headlines and the advertising do not support all of the hyperbole. As reported in an AP story,

> *Experts not connected with the discovery said the finding was remarkably complete because of features like stomach contents. But they questioned the conclusions of Hurum (Jorn*

> *Hurum, of the University of Oslo Natural History Museum) and his colleagues about how closely it is related to ancestors of monkeys and humans.*
>
> *"I actually don't think it's terribly close to the common ancestral line of monkeys, apes and people," said K. Christopher Beard of the Carnegie Museum of Natural History in Pittsburgh.{2}*

So let's review the facts behind the hype based on the journal article written by the scientists who studied the fossil.{3}

In the late 1970's and early 1980's an area of Messel, Germany was being mined for oil shale. In the process of mining, workers uncovered fossils that were relatively well-preserved within this sediment. In 1983, a private group uncovered the lemur-like fossil that has now been classified as *Darwinius masillae*. *Darwinius massillae*, or Ida, was split into two plates, one of which ended up in Wyoming and another was purchased by Hurum at the Oslo Natural History Museum in 2007. With access to both plates, a group of paleontologists used advanced techniques to analyze this specimen. The results showed very detailed features including food in her stomach and an outline of her soft-body form, including her fur.

This is truly a remarkable find because so much of the fossil is intact and many details are preserved. Furthermore, this provides an opportunity to study a fossil that paleontologists date at 47 million years old. The final conclusion of the journal article is, "*Darwinius masillae* is important in being exceptionally well preserved and providing a much more complete understanding of the paleobiology of an Eocene primate than was available in the past." They also indicate that she is important for classification purposes because there are so few fossils from this particular era and location. They hope that she will allow other paleontologists to have specific features to aid in classifying other fossils.

This is the extent to which the journal article discusses the significance of Ida. However, the authors and the media are painting a far different picture. The claims that Ida is the "missing link" in human evolution, or a "Rosetta stone" for understanding early branches in the human evolutionary tree, or the "eighth wonder of the world," are not reported in the peer-reviewed scientific journal. However, the authors of this journal are now marketing their find as such. In addition to The History Channel documentary, they have a book that will be coming out soon.

Whether it is "the bones of Jesus," global warming, or the latest "missing link" fossil fad, we recommend much discernment and discretion when reading about something that makes such grandiose claims as changing the world or solving some ancient mystery. This is plain old sensationalism and marketing to get famous and make money. This is an excellent fossil find that any paleontologist would love to study, but this is not "proof" of evolution. Evolutionists have been engaging in a marketing blitz this year honoring Darwin's 200th birthday and the 150th anniversary of the publication of *Origin of Species*. This fossil has been studied for two years. Just looking at the documentary, the book schedule, and the name, it is no coincidence that it came out this year at this time. The authors of the paper seem to be banking off of the Darwin hype.{4}

For a great article on why Ida is not the missing link, go to Access Research Network's article "Ida: The Holy Grail of Missing Links?".

Another interesting article with excellent points by Jonathan Wells can be found at *World Net Daily*'s article "Media Blitz; 'We found missing link'".

Slate has an article that discusses the media's overuse of the term "missing link": "How Many Times Will Paleontologists Find the 'Missing Link'?".

For a broader discussion of the relationship between fossils and the debate between Darwinian and creation-based models for the origins of life check out our section on "Origins" under the "Faith and Science" section of our website at www.probe.org .

Notes

1. www.history.com/content/the-link/about-the-link/the-link
2. Malcolm Ritter, The Associated Press, May 20, 2009.
3. For the entire journal article: www.plosone.org/article/info:doi/10.1371/journal.pone.0005723
4. online.wsj.com/article/SB124235632936122739.html; www.sciencedaily.com/releases/2009/05/090519104643.htm; www.guardian.co.uk/science/2009/may/19/ida-fossil-missing-link/print

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Darwin Day

February 12, 2009 is being promoted internationally as Darwin Day. Aside from being Abraham Lincoln's 200th birthday it is also Charles Darwin's 200th birthday. It's not too difficult a guess to say that the emphasis on Darwin is due in large part to the continuing success of groups around the world arguing that Darwinism is not all that it has been made out to be.

In America 40% of the general public still does not accept that a purely naturalistic process is responsible for all we see in the living world. This drives the community of evolutionary biologists and all humanist and atheist groups positively bonkers. They all but blame the decreasing enrollments in science programs in this country on this

continuing reticence to accept Darwin.

Some see the need, therefore, to increase education on all things Darwin on the occasion of Darwin's anniversary and all the contributions of the man and the idea. We will hear how Darwin revolutionized biology. The often repeated quote of Theodosius Dobzhansky, a mid-20th century evolutionist, that "nothing in biology makes sense except in the light of evolution," will be repeated ad nauseum.

There is no doubt that Darwin made impressive contributions about the ubiquitous nature of small scale changes in biological populations over time. Not all things Darwin are to be considered suspect. But separating the good from the bad can be a daunting challenge at times.

The recent documentary film, *Expelled: No Intelligence Allowed*, received howls of protest at the accusation that Darwinism made a contribution to the Nazis' eugenics program and ideas of racial purity. Never mind that these connections have been considered historical facts for decades. Richard Weikart's excellent book, *From Darwin to Hitler: Evolutionary Ethics, Eugenics, and Racism*, makes the case in great detail from the German literature of the early decades of the twentieth century. But casting aspersions on Darwin in a very public setting just isn't tolerated. People might get the wrong idea, you see, that Darwin is anything less than THE saint of modern biology.

You should also pay no attention to the fact that when the great Supreme Court Justice, Oliver Wendell Holmes, finished his soldiering in the Civil War, he became a convinced Darwinist after all the suffering he witnessed and participated in. This led to his rethinking about law in general. He soon realized that since all things biological change over time, so should the law that we govern ourselves by. Holmes was the original activist judge, making law instead of interpreting law. He firmly believed that law was a product

of evolving cultures and traditions.{1}

The innovator in moral philosophy of education John Dewey was decidedly Darwinian. The originator of the still popular Values Clarification moral approach believed that moral values evolve just like biological features, and students must be free therefore to arrive at their own values. We simply can't know if our values are better or preferable than another's. When given a choice, most parents prefer their children be taught a clear system of right and wrong but most teachers prefer to teach a values clarification approach.{2}

If we're going to be bombarded with Darwiniana this month and for the rest of the year (since 2009 is also the 150th anniversary of the publication of Darwin's *On the Origin of Species*) let's appeal for some balance. Since even Abraham Lincoln is being reevaluated as perhaps not the great President many have idolized him to be, why not Darwin?

Check out Probe's numerous articles on the various problems with Darwinian practice and thinking. Also stop by the Discovery Institute's website at www.discovery.org/csc to keep up with the latest news through articles, podcasts, and news briefs.

Let's teach more Darwin for sure. But let's try to tell the whole story and not just the laundered propaganda of the evolutionary elite.

Notes

1. Nancy Pearcey, *Total Truth* (Wheaton, IL: Crossway Books, 2004), p. 228-229, 237.
2. Ibid., 238-242.

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Darwinist Arguments Against Intelligent Design Illogical and Misleading

I recently attended a debate on "Intelligent Design (ID) and the Existence of God." One of the four debaters was Dr. Lawrence Krauss{1} representing an atheistic, anti-ID position. I was looking forward to hearing what Dr. Krauss would say when speaking in the presence of other knowledgeable members of academia. Would he go beyond the tired, illogical talking points passed on without question by the mainstream media? Or would he present some thoughtful arguments *against* the validity of intelligent design concepts and/or *for* the current state of Darwinist explanations for life as we know it?

Since I believe there are some thoughtful, interesting arguments that could be raised against intelligent design, I was sorely disappointed to discover that Dr. Krauss did not deviate from the shallow arguments which consistently appear in media coverage of this topic. As one of the other debaters, Dr. David Berlinski {2}, commented after Dr. Krauss' opening statement, "Everything you have said is either false or trivial."

However false and trivial they may be, these arguments are blindly accepted as reasonable by many people. As thinking Christians, we have a responsibility to be prepared to tear down these façades raised up against the knowledge of God. One way to do this is to be able to discuss with others the prevailing arguments in ways that reveal their weaknesses and inconsistencies. To help in that process, the remainder of

this article will list several of the standard arguments offered up by Dr. Krauss and examine their reasonableness and validity.

Argument: **Evolution is a proven fact**. Scientific experiments and observation over the last 100 years have conclusively demonstrated that evolution is a fact.

> ***Analysis: Faulty logic resulting in false conclusion****. In the context of the debate, "evolution is a proven fact" is implied to mean that random mutation coupled with natural selection is the sole process through which life evolved on this planet.* ***This meaning of evolution is not a proven fact.*** *What has been demonstrated through observation and experimentation is that the frequency of certain characteristics in a species will vary over time through random mutations and natural selection. These results provide some support to the theory that these undirected natural causes could be responsible for the development of life as we know it, but they do not come close to proving it. In logical terms, we would say that what science has demonstrated is necessary for the premise to be true but not sufficient to prove that it is true. That would be like saying, "Since we can demonstrate that wind and water erosion can produce regular geometric patterns, this proves the Statue of Liberty is the result of undirected natural forces."*

Argument: **Origins science is the same as observational science**. Both the study of origins (or other one-time events) and the study of ongoing natural processes are the same because they both look at data that was observed in the past. Therefore we can apply the same criteria to origins science as to observational science. Since observational science depends on repeatable experiments, we should reject out of hand any hypothesis (e.g. ID) that considers intervention by a designer because we cannot recreate it.

> ***Analysis: False premise resulting in faulty conclusion****. The study of origins is more akin to archaeology and forensic science than to observational science. In these fields, scientists look at the evidence left over by past events to help evaluate hypotheses on what caused the event to determine the ones that are most likely. As an example, consider the question, "Why does the earth have a large moon?" Scientists have a number of different theories on when and how our earth acquired a moon, but they would all agree that we can never be certain what actually happened (apart from the development of a time machine which would allow us to go back and observe the event). It is true that in observational science fields, scientists do look at results from experiments done in the past. But, they can choose to repeat those experiments in the future.*
>
> *Regardless of whether one is considering the role of natural selection or the role of an intelligent designer, when you are developing hypotheses for the origins and development of life on earth the best that can be done is to access which processes had the highest probability of contributing to the end results. If you eliminate all options other than random variations in natural processes, you tie the hands of scientists in considering how the evidence best fits all hypotheses.*

Argument: Some things that have the appearance of being designed are not. Therefore, we cannot detect the presence of design.

> ***Analysis: Faulty logic resulting in false conclusion****. Yes, there are things found in nature from the geodesic shapes of carbon structures to the results of erosion that mimic shapes designed by man. Yet, most of us seem to have no problem distinguishing between the remains of ancient civilizations and the results of undirected natural processes. If you*

search enough beaches and tidal pools, you can probably find every letter of the alphabet produced by the interaction of tides and currents. But, if you come across the words "John loves Mary" in the sand, you will be very confident that these were the result of intelligent intervention.

Argument: The theory of evolution is a foundation of modern science.

Analysis: Switching definitions results in false conclusion. *Understanding the processes by which bacteria, viruses, species and societies change in response to changes in their environment are important concepts in modern science. However, whether one believes these processes are solely responsible for the origin and development of life on earth or not has little or no impact on one's ability to make advances in science. To date, I have not been made aware of a single positive advance in modern science or engineering that required the developer to fully believe in Darwin's view of the origins of the species in order to make that advance. One's beliefs on origins are foundational to answering the metaphysical questions of life, but don't preclude someone from making contributions in science. Advances in science have been made by Christians, Hindus, Buddhists, Jews, atheists, etc.*

Argument: Scientists understand how the bacterial flagellum evolved, disproving the concept of irreducible complexity.

Analysis: False statement coupled with faulty logic. *The bacterial flagellum is a complex device used to propel some types of bacteria. It is comprised of over 30 different proteins. Not only do these proteins perform different complementary functions, but they must be assembled in the bacteria in exactly the right sequence by other proteins. Since the flagellum will not function without all of these elements in place (i.e., it meets the definition of*

irreducible complexity established by Dr. Behe in his book Darwin's Black Box), the premise is that all of these parts would have to appear simultaneously in order for natural selection to favor carrying forward any of these mutations in the gene pool.

Dr. Krauss stated that scientists have shown that the bacterial flagellum is not irreducibly complex. To the best of my knowledge, this is a gross overstatement. The arguments I have seen presented fall far short of developing a plausible explanation for how the flagellum could have evolved{3}. If a plausible argument coupled with experimental evidence exists, I am very interested in having my understanding updated. However, even if such evidence did exist, it would not demonstrate that the concept of irreducible complexity was false or that this unknown plausible path was the way the flagellum came onto the scene.

Argument: Intelligent Design can never be science because it is not falsifiable. You must have ways to prove a scientific theory is false in order for it to be a valid theory. Any observation that does not agree with the theory can be attributed to supernatural intervention.

***Analysis: Arbitrary, inconsistent definition**. Academics in the field of philosophy of science do not agree that the ability to falsify establishes a boundary on what is and is not science. Professor of philosophy and atheist Dr. Bradley Monton {4} pointed this out during the debate. He argued that we should not exclude a potentially valid hypothesis simply on the basis of a narrow definition of science. In addition, origins science cannot meet this standard. Proponents of neo-Darwinism have clearly demonstrated over the last few decades that it is not falsifiable either. Whenever the theory disagrees with the evidence, its proponents claim that natural selection found a way around the problem; we just*

don't know what it is yet. As Richard Dawkins stated, "Evolution is more clever than we are."

Hopefully, this summary will help you sort through the smokescreen of "conclusive" arguments offered up by the proponents of naturalistic Darwinism. Perhaps someday they will engage in a genuine discussion where both sides can state: 1) the reasons they believe their theory has merit and, 2) the observations that create problems for their theory. Such a discussion might actually prove helpful to someone trying to sort through the evidence to make an evidence-based faith decision.

Notes

1. Dr. Lawrence Krauss is the Foundation Professor in the School of Earth and Space Exploration and the Physics Department, Co-Director of the Cosmology Initiative, and Inaugural Director of the Origins Initiative at Arizona State University.

2. Dr. David Berlinski is a lecturer, essayist and a Senior Fellow of the Discovery Institute's Center for the Renewal of Science and Culture. Dr. Berlinski received his Ph.D. in philosophy from Princeton University and was a postdoctoral fellow in mathematics and molecular biology at Columbia University.

3. Additional information from the Reference Guide to Redeeming Darwin available at *RedeemingDarwin.com*.

Example of Darwinist argument: Since design cannot be considered as an explanation, evolutionists maintain that complex structures like flagellum evolved slowly over time from less complex structures performing other functions in the cell. Kenneth Miller states: "At first glance, the existence of the type III secretory system (TTSS), a…device that allows bacteria to inject these toxins through the cell membranes of

its unsuspecting hosts, would seem to have little to do with the flagellum. However, molecular studies of proteins in the TTSS have revealed a surprising fact—the proteins of the TTSS are directly homologous to the proteins in the basal portion of the bacterial flagellum…. The existence of the TTSS in a wide variety of bacteria demonstrates that a small portion of the "irreducibly complex" flagellum can indeed carry out an important biological function. Since such a function is clearly favored by natural selection, the contention that the flagellum must be fully assembled before any of its component parts can be useful is obviously incorrect. What this means is that the argument for intelligent design of the flagellum has failed." Response to Darwinist argument: The flagellum is an excellent example of an irreducibly complex function in one of the simplest life forms. Different proteins and structures work together to create a swimming mechanism. This complex interaction cannot be adequately explained by evolutionary processes. Mutations creating only one piece of the flagellum in a life form without the other pieces would not create any value to be carried on to the subsequent generations. Miller's statement that "the argument for intelligent design has failed" misses the point of irreducible complexity. The fact that one component of an irreducibly complex system may have another useful function does not remove the barrier that the irreducibly complex system requires the simultaneous appearance of multiple cooperating components to perform a function that has not been performed in that way before. In addition, William Dembski points out another problem with Miller's argument:

> *The best current molecular evidence, however, points to the TTSS as evolving from the flagellum and not vice versa…. Miller has nothing more than the TTSS to point to as a possible evolutionary precursor. Behe and the ID community have therefore successfully shown that Darwinists don't have a clue how the bacterial flagellum might have arisen.*

4. Dr. Bradley Monton is a philosophy professor at the University of Colorado at Boulder. His areas of specialization include the Philosophy of Science (especially Philosophy of Physics), Probabilistic Epistemology, Philosophy of Time and Philosophy of Religion. Previously he was on the faculty of the University of Kentucky, an Assistant Professor at The American University of Beirut and a Teaching Assistant at Princeton University. He earned his Bachelor of Arts in Physics and Philosophy at Rice University and his Ph.D. in Philosophy from Princeton University.

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Only Science Addresses Reality?

Dr. Ray Bohlin comments on the hubris of Drs. Coyne and Cobb in their op-ed in Nature*, in which they claim that only science addresses reality. Religion, they say, must be silenced. This alarming sentiment has already met reality in California.*

Would it surprise you to hear that churches may eventually be prohibited from teaching any ideas contrary to Darwinian evolution? "No way!" you say. "The Constitution guarantees freedom of speech! The first amendment guarantees that Congress can pass no law restricting or promoting any religious exercise!"

Well, yes the Constitution does that, but be patient with me and I'll show why the answer to the opening question could be "yes."

In the current issue of Nature, probably the most prestigious science journal in the world, a letter to the editor appeared in the August 28, 2008 issue on page 1049. Two well-known evolutionary biologists, University of Chicago's Jerry Coyne and University of Manchester's Matthew Cobb wrote the letter to complain about a previous editorial expressing hope that the Templeton Foundation, which funds research into the relationship between science and religion, might bring about some helpful resolutions.

Coyne and Cobb couldn't disagree more:

> We were perplexed by your Editorial on the work of the Templeton Foundation…. Surely science is about material explanations of the world—explanations that can inspire those spooky feelings of awe, wonder and reverence in the hyper-evolved human brain.
>
> Religion, on the other hand, is about humans thinking that awe, wonder and reverence are the clue to understanding a God-built Universe…. ***There is a fundamental conflict here, one that can never be reconciled until all religions cease making claims about the nature of reality*** (emphasis added).
>
> The scientific study of religion is indeed full of big questions that need to be addressed, such as why belief in religion is negatively correlated with an acceptance of evolution. One could consider psychological studies of why humans are superstitious and believe impossible things….
>
> …***You suggest that science may bring about "advances in theological thinking." In reality, the only contribution that science can make to the ideas of religion is atheism*** (emphasis added).

Coyne and Cobb clearly state that religion has no authority to make claims about reality. If science is allowed to persist in this audacious distortion of religion and science, then any kind of teaching that is critical of any aspect of

naturalistic evolution would be considered a negative influence on society as a whole. Religion is seen as crossing its constitutionally protected borders.

Biology teachers constantly complain now that what they teach about evolution is contradicted by the churches their students attend. This is obviously quite frustrating. If science is the only branch of knowledge that is allowed to make claims about reality, then religious teachings should not be allowed to interfere.

You may still be thinking that I'm taking this too far. Consider though that the California state university system already refuses to give credit for high school science courses that include anything beyond naturalistic evolution. Many Christian private school graduates in California are finding that their science courses are not accepted at state universities. Essentially that means you don't get in unless you can make those credits up by taking junior college science courses that meet the evolution-only standard.

State governments may easily decide that they need to help these religious school graduates out by requiring that these religious schools not be allowed to teach religious material that contradicts state-mandated standards. It's a violation of the separation of church and state, after all!

If you ever questioned the importance of the evolution/Intelligent Design controversy, I hope you see the point now. Unless we can convince a sufficient minority in the science community that science is limited and the subject of origins is one of those limitations, we may not be able to legally teach students anything about creation or Intelligent Design.

While Coyne and Cobb certainly don't represent all scientists, they are not alone! Trust me. I watched a video recently of Jerry Coyne making a presentation at a scientific meeting

where he basically made the very same claim. NO one objected. He was applauded enthusiastically. Watch it for yourself here. While the whole lecture is worth watching, the last eight minutes when he presents a slide with just the word "Religion" is the key segment.

Coyne and others are trying to establish what Nancy Pearcey called the fact/value split in her book *Total Truth*. To Coyne science is based on fact. Only material explanations are allowed in science since religion is based on personal values and have nothing to do with facts. Therefore if you try to inject your personal values (Creation, Intelligent Design) into the world of facts (science) this is a violation of the rules of science. It's not allowed.

According to Jerry Coyne speaking in the video, the only way to increase the acceptance of evolution is to reduce or eliminate the influence of religion. The two are incompatible! Coyne is unable to see that he also has a worldview, materialism, which influences how he interprets the data of science. He erroneously believes he is being objective about his interpretation.

This is a cultural battle as well as a scientific battle. For more information and resources from Probe to help you educate yourself and others about evolution and Intelligent Design see browse our articles at www.probe.org. If we don't "tear down strongholds" like this, we may find ourselves behind impenetrable, silent walls.

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Origin Science

There is a fundamental distinction between operation science and origin science. The founders of modern science had a Christian view of creation.

Origin Science versus Operation Science

Recently Probe produced a DVD based small group curriculum entitled *Redeeming Darwin: The Intelligent Design Controversy*. It has been a great way to inform Christians about Intelligent Design and show them how to use a conversation about this topic to share the gospel.

This year also marks the twentieth anniversary of a book Norman Geisler and I published entitled *Origin Science*.{1} In light of the current controversy concerning intelligent design, I want to revisit some of the points we made in this book because they help us better understand some of the key elements in the debate about origins.

The foundational concept in the book was that there is a fundamental difference between operation science and origin science. Operation science is what most of us think of when we talk about science. It deals with regularities. In other words, there are regular recurring patterns that we can observe, and we can do experiments on those patterns. Observation and repeatability are two foundational tools of operation science.

Origin science differs from operation science because it does not deal with present regularities. Instead it focuses on a singular action in the past. As we say in the book, "The great events of origin were singularities. The origin of the universe is not recurring. Nor is the origin of life, or the origin of major new forms of life."{2}

We argued that "a science which deals with origin events does

not fall within the category of empirical science, which deals with observed regularities in the present. Rather, it is more like forensic science."{3} In many ways, origin science is more like the scientific investigations done by crime scene investigators. The crime was a singular event and often there was no observer. But CSI investigators can use the available evidence to reconstruct the crime.

Likewise, research into origin science must use the available evidence (the bones and the stones) to try to reconstruct a past event. We therefore concluded that:

> In origin science it is necessary to find analogies in the present to these events in the past. Thus, for example, if evidence is forthcoming that life can now be synthesized from chemicals (without intelligent manipulation) under conditions similar to those reasonably assumed to have once existed on the primitive earth, then a naturalistic (secondary-cause) explanation of the origin of life is plausible. If, on the other hand, it can be shown that the kind of complex information found in a living cell is similar to that which can be regularly produced by an intelligent (primary) cause, then it can be plausibly argued that there was an intelligent cause of the first living organism.{4}

Rise of Modern Science

When we discuss the differences between origin science and operation science, it is important to point out that evolutionists and creationist differ in what they believe caused the origin of the universe, the origin of life, and the origin of major life forms. "Evolutionists posit a secondary natural cause for them; creationists argue for a supernatural primary cause."{5}

Evolutionists argue that a naturalistic explanation is all

that is necessary to explain these origin events. There is no need for the supernatural. Julian Huxley, speaking at the Darwin centennial celebration in Chicago, declared: “In the evolutionary pattern of thought there is no longer need or room for the supernatural. The earth was not created; it evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body. So did religion.”{6}

Although most scientists today make no room for the supernatural, that was not always the case. In fact, it can be argued that it was a Christian view of reality that essentially gave rise to modern science.

In a landmark article on this topic M.B. Foster asked: “What is the source of the un-Greek elements which were imported into philosophy by the post-Reformation philosophers, and which constitute the modernity of modern philosophy? And . . . what is the source of those un-Greek elements in the modern theory of nature by which the peculiar character of the modern science of nature was to be determined?” These are two important questions. He said: “The answer to the first question is: The Christian revelation, and the answer to the second: The Christian doctrine of creation.”{7}

Foster argued that modern empirical science did not emerge from a Greek view of nature. Instead it arose because the founders of modern science had a Christian view of nature. They “were the first to take seriously in their science the Christian doctrine that nature is created.”{8}

Foster argued that only when the Greek concept of necessary forms in nature had given way to the Judeo-Christian idea of a contingent creation did it become necessary to take an empirical route to finding scientific truth. Once these scientists came to view nature as contingent creation it became necessary to use observation and experimentation to understand it. From there, modern science arose.

Francis Bacon

Francis Bacon's belief in the concept of creation is well known. Bacon even confessed that his motivation to observe and experiment was based on the creation mandate in which God said to man: "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over [it]." (Gen. 1:28).

Of this mandate to subdue creation Bacon wrote, "Only let the human race recover that right over nature which belongs to it by divine bequest, and let power be given it; the exercise thereof will be governed by sound reason and true religion."{9}

Speaking of the natural world, Bacon declared, "The beginning is from God: for the business which is at hand, having the character of good so strongly impressed upon it, appears manifestly to proceed from God who is the author of good, and Father of Lights."{10}

Bacon believed that a careful observer of nature could discover certain "fixed laws" which he could use in subduing the world and have dominion over creation. In fact, he believed that nature (like the Bible) is the revelation of God. So Christians need not fear that any discovery in God's world (science) will destroy their faith in God's Word (Scripture). For "if the matter be truly considered, natural philosophy is, after the word of God, at once the surest medicine against superstition and the most approved nourishment for faith, and therefore she is rightly given to religion as her most faithful handmaid, since the one displays the will of God, the other his power."{11}

Bacon believed he could discover the orderly laws by which God established in the creation. He described three approaches:

> The men of experiment are like the ant, they only collect and use; the reasoners resemble spiders, who make cobwebs

> out of their own substance. But the bee takes a middle course; it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own.{12}

Therefore the modern scientist is neither a scholastic spider not an empirical ant but a Baconian bee who extracts from nature what is available for transformation.

Bacon's understanding of Scripture was shaped by the writings of John Calvin. Both Calvin and Bacon were trained in the methods of Renaissance law. Calvin had applied this new method to Scripture, the book of God's Word. Bacon adopted this legal method of inquiry and applied it to the book of God's world.{13}

Kepler and Galileo

Johannes Kepler's astronomical views were also bedded deeply in his theistic beliefs about creation and the Creator. He stated that we "will realize that God, who founded everything in the world according to the norm of quantity, also has endowed man with a mind which can comprehend these norms."{14}

Kepler viewed the universe as a great mathematical machine created by God. Thus he wrote,

> My aim in this is to show that the celestial machine is to be likened not to a divine organism but rather to a clockwork . . . insofar as nearly all the manifold movements are carried out by means of a single, quite simple magnetic force, as in the case of a clockwork all motions [are caused] by a simple weight. Moreover I show how this physical conception is to be presented through calculation and geometry.{15}

Kepler assumed (as the Pythagoreans did) that the universe was mathematically analyzable. But unlike the Greeks, Kepler

believed that since the observable physical world was a creation of God, one could come to know God's thoughts by studying the physical laws of the universe.

Another great astronomer was Galileo. He believed "the Holy Scriptures and Nature are both produced by the Word of God; the former is the results of the dictation of the Holy Spirit, and the latter is the most obedient agent of the ordinances of God." Galileo also added: "I do not believe the same God who gave us our senses, our reason, and our intellect intended that we should neglect these gifts and the information they give us about nature, or that we should deny what our senses and our reason have observed by experiment or logical demonstration."{16}

Galileo believed that the observable laws of nature operate with unalterable regularity. Therefore scientific theories must fit nature. Nature cannot be changed to fit our scientific theories. God works in regular ways in the operation of his universe. He added that mere ignorance of natural causes of the operation of the world is not a sufficient justification for positing a supernatural cause.{17}

The supernatural is the source of the natural world, but the natural is the proper domain of science. Science deals with "natural phenomena" which supernatural realm is not subject to such test.{18} Thus, mere ignorance of natural causes of the operation of the world is not a sufficient justification for positing a supernatural cause.

By this distinction Galileo hoped to secure the domain of operation science from unjustified intrusions by religious dogma while retaining nonetheless his belief in a supernatural origin of the natural world.

Isaac Newton

Isaac Newton believed that God created the solar system. He held that the entire solar system was formed from a "common chaos" which is described in Genesis 1:2. From this chaos the "spirit of God," by means of gravitational attraction, formed the separate planets." In a letter to Thomas Burnet he insisted that "where natural causes are at hand God uses them as instruments in his works, but I do not think them alone sufficient for ye creation."{19}

For Newton, "this Being governs all things, not as the soul of the world, but as Lord over all, and on account of his dominion he is wont to be called Lord God or Universal Ruler." For "Deity is the dominion of God not over his own body, as those imagine who fancy God to be the soul of the world, but over servants. The Supreme God is a Being eternal, infinite, absolutely perfect."{20}

Newton believed that God had dominion over all His creation:

> And from his true dominion it follows that the true God is a living, intelligent, and powerful Being; and, from his other perfections, that he is supreme, or most perfect. He is eternal and infinite, omnipotent and omniscient; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity; he governs all things, and knows all things that are or can be done.{21}

This Christian concept of God was at the very center of Newton's cosmology. It was the very foundation of his scientific investigation. According to Newton, the universe was God's great machine, and scientists could discover the laws by which this machine operates because these are the laws of God.{22} Thus for Newton, God is the primary cause of the universe and natural laws are the secondary causes by which God operates in the natural world.

Sadly there is a bitter irony in all of this for creationists. The scientific method we employ today was built on the belief in a Creator and His creation. Now, a few centuries later, the science has been used to replace creationist beliefs about origins.

These early scientists shifted their emphasis from a primary cause (God) to secondary causes (natural laws) through which He operates in the natural world. Over time, the subsequent preoccupation with these secondary causes caused scientists to reject the legitimacy of positing a primary cause for these origin events. “In short, natural science came to bite the supernatural hand that fed it.”{23}

Notes

1. Norman Geisler and Kerby Anderson, *Origin Science* (Grand Rapids, MI: Baker Book House, 1987).
2. Ibid., 15.
3. Ibid., 14.
4. Ibid., 16.
5. Ibid., 15.
6. Ibid., 19.
7. Ibid., 37.
8. Ibid.
9. Ibid., 40.
10. Ibid.
11. Ibid., 41.
12. Ibid., 42.
13. Ibid.
14. Ibid., 44.
15. Ibid.
16. Ibid., 46.
17. Ibid., 49.
18. Ibid.
19. Ibid., 50.
20. Ibid.
21. Ibid., 51.

22. Ibid.
23. Ibid.

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Expelled: No Intelligence Allowed

Dr. Bohlin explores the key points from this documentary from a Christian perspective. He looks at three of the scientists featured on the film who were persecuted for their willingness to consider intelligent design as an option. The film may become dated but the issue of an intelligent creator versus an impersonal, random cause of creation will continue on for many years.

A film was released in April 2008 starring Ben Stein. Titled *EXPELLED: No Intelligence Allowed*,{1} this film documents the dark underside of academia in America and around the world, exposing what happens when someone questions a ruling orthodoxy. In this case, that orthodoxy is Darwinian evolution.

Evolution is routinely trumpeted as the cornerstone of modern biology, indispensable even to modern medical research. Therefore, if someone questions Darwinian evolution and its reliance on unpredictable mutation and natural selection, you are questioning science itself. At least that's how the gatekeepers of science explain it.

Never mind that over seven hundred PhD trained scientists from around the world have openly signed a statement questioning the ability of Darwinism to account for the complexity of

life. You'll find my name among them (www.dissentfromdarwin.org). We are usually dismissed as being misguided, uninformed or religiously motivated. We couldn't possibly have legitimate scientific objections to Darwinian evolution.

Many have refrained from signing that list because of the possible repercussions to their career. But isn't there academic freedom in this country? Doesn't science progress by always questioning and leaving even cherished theories open to reinterpretation? Isn't science all about following the evidence wherever it leads? Well, in theory, yes. Practically, scientists are human, too, and often don't like it when favorite ideas are reexamined.

The film *EXPELLED* explores the reality of what happens when evolutionary orthodoxy is questioned by vulnerable scientists who have yet to secure tenure.

In what follows, I will take a detailed look at just three of the scientists featured in the film. In each case I will reveal greater detail than the film is able to explore and provide resources for you to inquire further. Hopefully this will inspire you to learn more about this important issue and attend the film when it opens.

Let me briefly introduce the three scientists.

Richard Sternberg has a double PhD in evolutionary biology. As editor of a scientific journal, he oversaw the publication of an article promoting Intelligent Design and critical of evolution. As a result, he was harassed and falsely accused of improper peer review. He has been blacklisted.

Caroline Crocker taught introductory biology and made the mistake of including questions about evolution contained in science journals. She was accused of teaching creationism and eventually lost her job, and has been unable to find work ever since.

Finally, Guillermo Gonzalez, a well published astronomer, has been denied tenure because he supports Intelligent Design. Trust me, you'll find it hard to believe what you read.

Richard von Sternberg

Richard von Sternberg was the managing editor of the biological journal, *The Proceedings of the Biological Society of Washington,* or *PBSW*. Sternberg was employed by the National Institutes of Health in their National Center for Biotechnology Information. He was also a research associate at the Smithsonian Institution's National Museum of Natural History when he served as the journal's managing editor.

Sternberg was considered a rising scientist and theorist. His multiple appointments demonstrated great confidence in his research ability. By 2004 he had accumulated thirty scientific publications in peer-reviewed science journals and books.

His fall from grace was not for something he said or did, but for what he didn't do. As managing editor for *PBSW*, he did not reject outright an article submitted for publication that supported Intelligent Design as "perhaps the most causally adequate explanation" for the explosion of new, complex life forms during the Cambrian period. He "*mistakenly*" sent the paper out for peer review, and went along with reviewers recommendations for publication after extensive revisions were made.

When the article appeared in the journal's August 2004 edition, the journal and Sternberg were assailed for allowing the publication of this heresy. He was accused of not following proper peer-review procedure. If he had, certainly the paper would have been rejected. He was accused of acting as the editor himself when normal procedure was for the paper to be referred to an associate editor. If he had, surely the article would have been rejected. He was accused of choosing

reviewers predisposed to support the ID perspective of the article. If he had chosen true scientists, surely they would have rejected the article.

I think you get the point. Any scientist worth their salt would have rejected the article out of hand; Sternberg didn't and therefore was guilty of academic sin. Eventually, Sternberg claimed he was harassed by the Smithsonian where he currently worked. He claimed his office was changed, that he was denied access to museum specimens and collections, that his key was confiscated, and that he was subjected to a hostile work environment, all intended to get him to leave.{2}

The White House Office of Special Counsel was eventually called in to investigate, and although they eventually did not take the case because Sternberg was not actually a Smithsonian employee, they did issue a preliminary report documenting the inaccuracy of the charges against him and the accuracy of Sternberg's accusations.{3} He followed very standard and proper peer-review procedures and even got approval for the article from a member of the society's ruling council. You can bet that the editors of other journals were paying attention.

Caroline Crocker

Caroline Crocker, a PhD with degrees in pharmacology and microbiology, is a research scientist and former lecturer at George Mason University.{4}

As Crocker tells her story, she was an instructor at George Mason University, teaching introductory biology. One lecture was devoted to evolution, and she decided it was important for students to hear not just the evidence favoring evolution but published research that questioned certain elements of evolutionary theory. Crocker had come to this conviction not from any religious motivation but from her own research and convictions as a scientist.

The lecture was received very well with spirited discussion and she considered it a success. Days later she was called to her supervisor's office who accused her of teaching creationism. She denied this and claimed she never even used the word and encouraged her supervisor to look up the lecture herself which was online, as were all her lecture notes. Later she was demoted to only teaching laboratories and eventually dismissed altogether.

Upon getting another teaching job at a local community college, she eventually learned she was targeted for dismissal again and left on her own. Eventually, she applied for other teaching positions and, though initially offered the job at one interview, she was later called and told there was no money for the position. Someone at the National Institutes of Health eventually told her to stop looking because she was blacklisted.{5}

A young lawyer at a local law firm eventually volunteered to take her case *pro bono* [without charge]. His firm agreed with his decision and filed an initial complaint with George Mason University. The complaint was later dropped and the lawyer mysteriously asked to clean out his office. He too has struggled since, trying to find employment.

George Mason denies any wrongdoing, of course, and maintains that academic freedom is honored at their university, but they offer few specifics on just why Crocker was terminated.

Crocker always received high marks from her students and was qualified and effective wherever she went. Suddenly after questioning Darwinism, her scientific career is over. There is another viewpoint, of course. P. Z. Meyer's, for example, defends the decision to let Crocker go at the end of her contract because questioning evolution shows she was incompetent.{6}

Guillermo Gonzalez

Guillermo Gonzalez is a planetary astronomer and associate professor at Iowa State University. Gonzalez has done research and taught at Iowa State for five years and has accumulated an impressive record. He has accumulated over sixty peer-reviewed publications in various science and astronomy journals. In addition, he has presented over twenty papers at scientific conferences, and his work has been featured in such respected publications as *Science*, *Nature,* and *Scientific American*.{7}

Ordinarily, to become a tenured professor at a research institution there are specific requirements that must be met. The Astronomy Department at Iowa State requires a minimum of fifteen research papers. Gonzalez should have felt quite secure since he published nearly five times that many papers. He also co-authored an astronomy textbook through Cambridge University Press that he and others used at Iowa State. But his initial application for tenure was denied. The faculty senate indicated his application was denied because he didn't meet certain necessary requirements.

However, many suspected he was denied tenure for his support for Intelligent Design through his popular book and film *The Privileged Planet*. While having nothing to do with biological evolution, Gonzalez and his co-author Jay Richards maintain that our earth is not only uniquely suited for complex life but is also amazingly well-suited for intelligent life to observe the cosmos. This dual purpose seems to suggest design.

In denying Gonzalez's initial appeal, the university president specifically stated the denial had nothing to do with Intelligent Design. Gonzalez further appealed to the University Board of Regents. In the meantime, the Discovery Institute obtained internal university emails clearly indicating that the sole reason Gonzalez was denied tenure was due to his support of ID, despite the university's public denials. These emails also indicated that some of these

university professors knew what they were doing was wrong and conspired to keep their deliberations secret.

Amazingly, the ISU Board of Regents refused to see this information or provide Gonzalez an opportunity to defend himself before they voted. Not surprisingly, Gonzalez's final appeal was denied in early February 2008.

Be Prepared for *EXPELLED*

Probe Ministries highly recommends the film *EXPELLED: No Intelligence Allowed* as it highlights the harassment and persecution of PhD scientists at the highest levels of academia and exposes signs of ugly things to come in the culture at large.{8} Usually the scientific establishment tries to cover up these activities, but when exposed, they usually resort to saying that this level of harassment is deserved since a fundamental tenet of science is being challenged, and therefore these scientists don't deserve their positions. Academic freedom apparently only applies to disagreeing with details about evolution but not evolution itself.

These three stories are just the tip of the iceberg. These scenes are being played out around the world, and publicity is an important step in seeing justice done.

Now, let's be clear about something. Just because a few scientists and scientific institutions have behaved badly on behalf of evolutionary orthodoxy doesn't mean that evolution itself is suspect. But as I stated earlier, over seven hundred scientists have now signed a statement declaring their skepticism about Darwinian evolution as a comprehensive explanation of the complexity of life and the list is growing. The scientific underpinnings of Darwinian evolution have been unraveling for over fifty years. I've been personally involved in this revolution for over thirty years, long before Intelligent Design was even a recognized movement.

The *EXPELLED* documentary will certainly raise the visibility of this debate even further in the general public and hopefully within the church. But I have been quite surprised how many in the church are really unfamiliar with the Intelligent Design movement and are even suspicious of the motives and beliefs of those involved.

In that light, Probe Ministries and EvanTell unveiled last summer, before *EXPELLED* was announced, a small group DVD based curriculum about the Intelligent Design movement, called *Redeeming Darwin*. Check out this material at Redeeming Darwin.{9} There are small group leader kits, self-study kits, and very inexpensive outreach kits meant to be handed out to people wanting to see for themselves. We are thrilled to have Josh McDowell's endorsement, and our curriculum is being recommended to church youth leaders by those promoting *EXPELLED*.

This spring and through the summer the rhetoric will be escalating, and many just won't understand what all the fuss is about. First, make plans to attend *EXPELLED* in a few weeks and take some skeptical friends with you. Then give your friends a copy of our *Discovering the Designer* DVD and invite them to join your small group in studying Redeeming Darwin to help answer the inevitable questions about ID and evolution. In addition, Redeeming Darwin will show you how to take a conversation about ID and evolution and use it to share the gospel. That's how you can "redeem Darwin."

Notes

1. streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.
2. www.rsternberg.net/ (last accessed 2/12/08).
3. www.rsternberg.net/OSC_ltr.htm (last accessed 2/12/08). Sternberg used well-qualified reviewers for this paper and has steadfastly refused to identify them, which is normal protocol despite repeated attempts by evolutionists to find out who

they were. None of them were “creationists” as has been suggested.

4. www.washingtonpost.com/wp-dyn/content/article/2006/02/03/AR2006020300822.html (last accessed 5/18/20).

5. www.christianpost.com/news/expelled-exposes-plight-of-darwin-doubters-30277 (last accessed 5/18/20).

6. scienceblogs.com/pharyngula/2006/02/05/heck-yeahcaroline-crocker-shou (last accessed 5/18/20). Also be advised that PZ Meyers is not shy about using vulgar language.

7. To view a full list of online and print articles and to view Gonzalez’s academic record, visit the Discovery Institute’s section on Gonzalez at www.discovery.org/a/2939 (last accessed 5/18/20). See also post-darwinist.blogspot.com

8. streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.

9. Also see www.probe.org and streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.

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