

“So What Evidence IS There Against Evolution?”

Dr. Bohlin,

I just read [an article](#) by yourself condemning evolution and the teaching of it. You state your opinion that scientists should teach the controversy behind the teaching thereof. Is this the job of scientists? They cannot teach the issues in every discovery ever made and every theory they believe.

They would be teaching a course on the history of science rather than a course on science if they did. Evolution is accepted as proven in the scientific community, so why should scientists justify teaching it? We teach science in science classes and theology in theology classes. And what information is in conflict with it? You made frequent reference to it, but never said exactly what it is.

You state your opinion that scientists should teach the controversy behind the teaching thereof. Is this the job of scientists? They cannot teach the issues in every discovery ever made and every theory they believe.

Actually, science textbooks do this all the time, especially with the more important and central theories. Check out a high school or college introductory biology text that emphasizes evolution and I can just about guarantee that there will be some discussion about just what Darwin was attempting to overthrow in proposing his theory of natural selection. You're not really teaching science unless you also teach some of its history as well.

They would be teaching a course on the history of science rather than a course on science if they did. Evolution is accepted as proven in the scientific community, so why should scientists justify teaching it? We teach science in

science classes and theology in theology classes. And what information is in conflict with it? You made frequent reference to it, but never said exactly what it is.

The list of problems with evolution is long and has everything to do with science and nothing to do with theology. It has to do with evidence, both the lack of evidence for evolution on the broadest scale, and the presence of evidence for design.

Lack of Evidence for Evolution:

- No workable system for a naturalistic origin of life.
- Inability of evolutionary mechanisms to explain anything but minor variation in finch beaks and moth coloration.
- Rapid origin of nearly all animal phyla in Cambrian period with little or no evidence of ancestors.
- Early life is now known to not be monophyletic, a classic prediction of Darwinian evolution. Molecular evolutionists have had to invent a polyphyletic origin of life and massive gene transfers in earth's early history to explain the molecular data.
- Despite the presence of a few putative transitional forms in the fossil record, transitions are rare (Darwin expected them to be everywhere). The invertebrate fossil record is virtually devoid of any transitional forms (BTW, invertebrates comprise around 90% of the fossil record) .
- The fossil record demonstrates stasis, not a gradual process of origin for new forms.
- We see a lot of evidence for structures falling into disuse in organisms but no examples of new organs appearing.

Evidence for Design:

- Irreducible complexity of many cellular molecular structures and pathways.
- The genetic code is an informational code and informational codes only arise from an intelligent source.
- Junk DNA, a label derived from Darwinian interpretations

of non-transcribed DNA, is junk no longer. The “junk” continues to be found functional in surprising ways.

- The overall complexity of the cell was not anticipated by Darwinists, and the last 50 years has yielded surprise after surprise as to the order and complexity of living cells.
- Embryology is looking more and more like a biological process with a goal that cannot be arrived at by natural selection. Body plans are determined early in development but mutations in early development are the harshest and most deleterious mutations of all. An early mistake renders a ruined organism.

I have [other articles](http://www.probe.org) on our website, www.probe.org, that will elaborate with references most of the above claims.

Everything I have cited is known in the scientific community, but textbooks and media reports are routinely devoid of these evidences because the scientific community believes that science must only seek natural causes for all the biological realities they discover. (How the physical operates is reasonably to be assumed to be naturalistic, but the origin of physical and biological objects may not be so.) This is nothing more than a philosophical bias and not a scientific one. A scientist should be willing to follow the evidence wherever it leads and not wherever he wants it to lead. One of Richard Feynman’s basic principles for scientists was that a scientist must not fool him or herself, and he is the easiest person to fool. Evolutionary biologists are fooling themselves with an errant definition of science which leads to a suppression of real evidence to the contrary. Teaching the controversy is the only way at the moment to get around the naturalistic filibuster going on in science and in science education. Evolutionists are now fighting back hard because, I believe, that deep down they realize that a fully open and public discussion of the evidence is not to their advantage.

Respectfully,

Ray Bohlin, Ph.D.

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How to Talk to Your Kids About Evolution and Creation – What Kids Should Know About Evolution

Sue and Dr. Ray Bohlin bring decades of Christian worldview thinking and a PhD in science to the important topic of communicating a balanced rational position to our children and teenagers on questions that they will encounter in our society.

This article is the transcript of a Probe radio program the Bohlins recorded. Sue's questions and comments are in italics, followed by Ray's answers.

Problems with Evolutionary Theory

Why is there a problem with evolution in the first place? Someone once asked you, "What should I believe?" Remember what you told them?

Basically I said you should only believe what there is evidence for. After spending years studying evolution in bachelor's, master's, and doctoral programs, I can tell you that, first of all, there **is** evidence for small changes in organisms as they adapt to small environmental fluctuations.

Second, there **is** evidence that new species do arise. We see new species of fruit flies, rodents, and even birds. But when the original species is a fruit fly, the new species is still a fruit fly. These processes do not tell us how we get horses and wasps and woodpeckers.

Third, in the fossil record, there are only a few transitions between major groups of organisms, like between reptiles and birds, and these are controversial, even among evolutionists. If evolutionary theory is correct, the fossil record should be full of them.

Fourth, there are no real evolutionary answers for the origin of complex adaptations like the tongue of the woodpecker; or flight in birds, mammals, insects, and reptiles; or the swimming adaptations in fish, mammals, reptiles, and the marine invertebrates. These adaptations appear in the fossil record with no transitions. And fifth, there is no genetic mechanism for these large-scale evolutionary changes. The theory of evolution from amoeba to man is an extrapolation from very meager data.

So the problem with evolution is that it is a mechanistic theory without a mechanism, and there is no evidence for the big changes from amoeba to man.

The Evolution of the Horse

I have our son's eighth-grade biology textbook here. Every textbook, including this one, has a story about the evolution of the horse. It is always offered as proof of evolution. What do you say?

It does not prove much about evolution at all. David Raup, with the Field Museum of Natural History in Chicago, says:

"Well, we are now about 120 years after Darwin and the knowledge of the fossil record has been greatly expanded. We now have a quarter of a million fossil species but the

situation hasn't changed much. The record of evolution is still surprisingly jerky and, ironically, we have even fewer examples of evolutionary transitions than we had in Darwin's time. By this I mean that some of the classic cases of darwinian change in the fossil record, such as the evolution of the horse in North America, have had to be discarded or modified as a result of more detailed information—what appeared to be a nice simple progression when relatively few data were available now appear to be much more complex and much less gradualistic. So Darwin's problem has not been alleviated in the last 120 years and we still have a record which does show change but one that can hardly be looked upon as the most reasonable consequence of natural selection.”{1}

There is no chronological sequence of horse-like fossils. The story of the gradual reduction from the four-toed horse of 60 million years ago to the one-toed horse of today has been called pure fiction. All that can be shown is the transition from a little horse to a big one. This is not significant evolutionary change, and it still took some 60 million years. It does not say anything about how the horse evolved from a shrew-like mammal.

Homologous and Vestigial Organs

Homologous organs: What are they?

Homologous organs are organs or structures from different organisms that have the same or similar function. Evolutionists say this similarity is due to common ancestry. The important question is, Do these organs look and function the same because of common ancestry or because of a simple common design? In other words, do they look this way because they are related to one another, or were they designed to perform a similar function? Homology is not a problem for creationists; we have a different but reasonable explanation. It is the result of common design, not common ancestry.

What about vestigial organs, the ones that are supposedly left over from the evolutionary past? I remember being taught that the coccyx, the tailbone, is left over from when we were monkeys. And the appendix, same thing—we needed it when we were evolving, but we do not need it now. Vestigial organs are unused leftovers from our evolutionary past. Since we do not use them, they have diminished; they have become vestiges of their past function—according to evolutionary theory.

Yes, according to evolution. But we have discovered that these structures do have a function. The prime example is the one you mentioned, the tailbone. The coccyx serves as a point of attachment for several pelvic muscles. You would not be able to sit very well or comfortably without a tailbone.

The appendix was also long thought to be a vestigial organ, having absolutely no function within our bodies, but now we find it is involved in the immune system. It does have a function. It is true that you can live without it. However, as we learn more about the appendix, we realize that if it remains uninfected, it may be serving a very useful purpose.

So in other words, “vestigial organs” are not necessarily useless; we just may not have discovered what their role is.

Yes, very often we have called these things “vestigial” because we never bothered to investigate their function because of their reduced stature. Now we find that things like the coccyx and the appendix really do have a function. And if they have a function, then we cannot call them vestigial; they are not leftovers from our evolutionary past.

I am looking at pictures of embryos in this textbook that are very similar. The explanation given in the book is that they are similar because they have a common evolutionary ancestor. Obviously, this is being advanced as evidence of evolution. Is that what it is?

Definitely not. Embryological development does not follow the

history of our evolutionary past. [That idea was proven wrong 50 or 60 years ago.](#) It is unfortunate that this error is still in the textbooks. Obviously, there are some similarities among species very early in embryological development; for instance, among mammals, reptiles, amphibians, and birds. That is because they all start from a single cell. As development progresses, they become less similar. That is exactly what you would expect from an evolutionist or creationist perspective.

The Early Atmosphere of the Earth

You know, I was pretty happy with how this particular textbook treated evolution. It does not even use the word evolution, and it treats it strictly as a matter of theory, not fact. But you came across another, newer high-school textbook that is stridently pro-evolution. I am concerned about some things I see in this chapter on the origin of life. It is talking about the earth's early atmosphere, and this statement is in bold print (so the students know it's going to be on the test, don't you know!) <smile>

"The earth's first atmosphere most likely contained water vapor, carbon monoxide and carbon dioxide, nitrogen, hydrogen sulfide, and hydrogen cyanide."

Then in the very next section it talks about Stanley Miller's famous experiments in 1953. It says the atmosphere he was trying to recreate was made of ammonia, water, hydrogen, and methane. What is going on here?

This particular section is confusing at best and misleading at worst. Clearly they have described [Miller's classic experiment](#), but researchers today agree that the atmosphere used for that simulation did not exist. But yet Miller's experiment produced results. If you use the atmosphere that the textbook describes as the real one, the results are much less significant. The textbook gives the impression that

chemical evolution is easy to simulate. But this is far from the truth. One experimenter says:

At present, all discussions on principles and theories in the field [meaning the origin of life] either end in stalemate or in a confession of ignorance.[\[2\]](#)

But you would definitely not get that impression from reading this section of the book.

Phylogenetic Trees

I have another question. Here is this beautiful, tidy chart that shows how neatly different animals evolved from one common ancestor. This evolutionary tree has a crocodile-like animal at the bottom, and all these branches coming out from him, and we end up with turtles and snakes and reptiles and birds and mammals all descended from this one animal. Are we talking science fantasy here, or is there a problem with this evolutionary tree?

Evolutionary trees, or phylogenetic trees, are regularly misrepresented in high-school textbooks. The nice solid lines give the impression that there is plenty of evidence, plenty of fossils to document these transitions—but the transitions are not there. If we were to look at this same type of diagram in a college textbook, all those connecting lines—the transitions—would be dotted lines, indicating that we do not have the evidence to prove that these organisms are related. The transition is an assumption. They assume these organisms are related to each other, but the evidence is lacking. Stephen Gould, a paleontologist and evolutionist from Harvard, says,

“The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches. The rest is inference,

however reasonable: not the evidence of fossils."[{3}](#)

In other words, these charts make pretty pictures, but they're not pictures of reality.

That's correct.

Natural Selection and Speciation

In this same high-school biology text, I am looking at the chapter on evolution called "How Change Occurs." The big heading for this section is "Evolution by Natural Selection." Natural selection always seems to be linked inseparably to evolution. What is it?

Natural selection is a process where the organisms that are fit to survive and reproduce, do so at a greater rate than those that are less fit. It sounds circular, but it is a simple process, something you can easily observe in nature.

There are some pictures here of England's famous peppered moths. Why do they keep showing up in science textbooks?

They keep showing up because the [peppered moth](#) was the first documented example of Darwin's natural selection at work. There were two different color varieties of the same moth: a peppered variety and a dark black variety. The peppered variety was camouflaged on the bark of trees, but the black variety was conspicuous. As a result, the birds ate a lot of black moths. The most common variety, therefore, was the peppered variety. But then the bark of the trees turned dark or black because of pollution. Now the dark form was hidden, but the peppered variety stood out, so the birds ate up the peppered variety. The proportion of peppered moths to black moths shifted in response to the change in the environment.

So here was a change of frequency. At one time we had more peppered moths, and now we have more dark ones. A clear

example of natural selection taking place. But the question is, Is this really evolution? I don't think so. It just shows variety within a form. This does not tell me anything as a biologist and a geneticist about how we have come to have horses and wasps and woodpeckers.

When we are looking at peppered moths, we are dealing with natural selection within the same species. What about a whole new species; for example, Darwin's [Galapagos finches](#) off the coast of Ecuador. Isn't that an evidence of evolution?

Here is another area where we need to be careful. Speciation is indeed a real process, but speciation only means that two populations of a particular species can no longer interbreed. The two populations get separated by a geographical barrier such as a mountain range, and after a time they are no longer able to interbreed or to reproduce between themselves.

But all we have really done is split up the gene pool into two different, separate populations; if you want to call them different species, that's fine. But even Darwin's finches, although there are some changes in the shape and size of the bill, are clearly related to one another. Drosophila fruit flies on the Hawaiian Islands—there are over 300 species—probably originated from one initial species. But they look very much the same. The primary way to distinguish them is by their mating behavior.

There is a lot of variety within the organisms God created, and species can adapt to small changes in the environment. But there is [a limit to how far that change can go](#). And the examples we have, like peppered moths and Darwin's finches, show that very clearly.

Responding to Evolutionary Theory

You have given a creationist's response to evolution in textbooks, but apart from the books there is a personal issue

to deal with. How do you think Christian students ought to react when they get to evolution in a science curriculum in school?

First, don't panic. This should not be a surprise; you knew it was going to come eventually. Second, understand that evolution is a very important idea in society today. It is important to know about it and to understand it. Try to explain it to your kids in that way. You do not have to believe it or accept it, but you need to understand it, know what people mean when they talk about evolution.

What about answering a question on a test?

Here it can get a little sticky. You may feel that you have to lie in order to give the answer the teacher wants. But I do not think that is the case at all. What you are doing is simply addressing the issue of evolution; you are showing that you understand it. You do not have to phrase your answer in such a way that says, "I believe this is the way it is." It may come down to how you state your answer. But you are simply demonstrating your knowledge about evolution, not your acceptance of it.

It seems to me that when you show you understand the concept of evolution, you are demonstrating respect for the teacher and really for the theory too, as the prevalent theory of our day, without having to make a statement of, "Yes, I believe this!"

Sure. The concept of respect, I think, is extremely important, because you have to realize that as a middle-school or high-school student, you are dealing with teachers who have studied or taught evolutionary theory for many years. Their level of understanding is much deeper than yours. You cannot simply go in there and try to convince the class that the teacher is wrong, or that evolution is wrong; you need to play the role of a student. And the role of a student is to learn, to try to

understand and comprehend the ideas being discussed. But you do not have to communicate in such a way that you appear to believe evolutionary theory.

I found this page in the textbook we have been looking at, right after the chapters on evolution. It is a message from the authors to the students. It says,

“Evolutionary theory unites all living things into one enormous family—from the tallest redwoods to the tiniest bacteria to each and every human on Earth. And, most importantly, the evolutionary history of life makes it clear that all living things—all of us—share a common destiny on this planet. If you remember nothing else from this course ten years from now, remember this, and your year will have been well spent.”{4}

I have never seen a message like this before, from the authors to the student. This textbook obviously has a very strong evolution bias.

Here we have to realize that what is being taught is not science anymore; this is a worldview. This is a statement of naturalism. Obviously, evolution is extremely important to the naturalistic worldview, and the authors are trying to communicate its significance. We are going to see [more and more of this bias in textbooks.](#)

Before Christian parents can talk to our kids about evolution, we first must have an understanding of evolution itself, as well as an understanding of the problems with it. We don't need to be afraid of this powerful theory; we do, however, need discernment, in sifting through the rhetoric and distinguishing it from the truth about God's world.

Genesis 1

Typically, if a child spends any time at all in Sunday school,

he gets to the point where he realizes, "Hey, this doesn't relate at all to what I'm learning in school!" Our hope is that we can help parents integrate the truth of Scripture with what is known about origins in the world. As Christians, our starting point for thinking about origins is Genesis 1: "In the beginning God created the heavens and the earth." From that point on, though, there are a lot of different perspectives explaining the rest of the chapter.

That is true, and unfortunately it not only gets confusing for many of us, but it gets very confusing for many of the academics and the scholars as well. There are a number of different ways to interpret Genesis 1. Let me just run through [three of the most prominent views](#) among evangelicals today.

The first is the **literal** or the **very recent** creation account. Some people would call the proponents of this view "young earth creationists." They believe that each of the six days of creation was a twenty-four hour period similar to our days today. These days were consecutive and in the recent past, probably ten to thirty thousand years ago. They hold that the flood was a world-wide and catastrophic event and that all the sedimentary layers were a result of Noah's flood. All the fossils, therefore, are a result of the flood of Noah.

The second way of looking at Genesis 1 is the **Day Age Theory**, sometimes called **Progressive Creation**. Here, each of the six days of creation is a very long period of time, perhaps hundreds of millions of years. God would have created progressively through time, not all at once. The flood was a local event in Mesopotamia or perhaps even a world-wide, but tranquil flood. Therefore, the flood did not leave any great scars or sediments across the earth.

The third view understands Genesis 1 as a **Literary Framework**. This view suggests that Genesis 1 was not meant to communicate history. Peoples of the Ancient Near East used a similar literary device to describe a complete or perfect work; in

this case, a perfect creation. God could have created using evolution or progressive creation; the point is that there is really no concordance between earth history and the days of Genesis 1.

We need to explain to our children the view that makes the most sense to us, but at the same time let them know that there is some disagreement between evangelicals. You may even be confused yourself, and it is okay to communicate to your children that you do not know, either, and that not knowing is all right. We need to give direction but leave the doors open for other options.

Can we know which one is the correct interpretation?

Creation is a mystery. We need to show respect, not only for the mystery, but also for those people holding different views. Evangelicals with backgrounds in Hebrew and Greek differ on their understanding of Genesis 1. So how can we expect a ten-year-old to grasp the problem and make an actual decision?

When we explain the creation account in Genesis 1, we need to communicate to our children that different scholars, all committed to the Bible as God's Word, interpret Scripture differently. The important thing is that we stress that God created the earth, the universe, and every living thing, especially humans.

Early Human History

Now we are going to look at some specific issues that arise from Genesis in terms of early human history. Let's start with Adam and Eve. Were they real people?

This is a very important question, and I think it is one that most evangelical scholars can agree on. Adam and Eve were real people, and almost all evangelical scholars agree that they were created by God. The reason is that this is the one

creation event where God gives us details as to how He went about it. When He created the other mammals and the sea creatures and the birds, He *made* them or He *created* them or He *formed* them, but we are given details about Adam and Eve's creation. We are told how God did it. Adam was formed from dust, and Eve was created from a rib taken out of Adam's side. It is clear that humans do not have an evolutionary origin.

What about australopithecines, those supposed ape-like human ancestors?

Australopithecines most likely are simply extinct apes. Some quibble as to whether they walked upright and therefore may have been on their way to developing into human beings, but even if they did walk upright, that is not a real problem. They are still extinct apes, and they really had no human qualities whatsoever. There is a very good book that you may want to look at called *Bones of Contention*. There are a couple of books called *Bones of Contention*, but this is a recent one by Marvin Lubenow. Lubenow goes into great detail about the actual fossil finds—what they mean, where they fit—all from a creationist's perspective, and he does a very good job. He talks about the fact that human remains seem to span the whole era of supposed human evolution from four million years ago to the present, and that even the one particular type of fossil called *homo erectus* covers a very broad range. *Homo erectus* does not really fit where he is supposed to, and the fossils seem to contradict evolutionary theory rather than support it.

There is one more question that keeps coming up again and again. Where did Cain's wife come from?

In some ways it is surprising that this question seems to be so perplexing to people, but in another way I really understand it. Clearly, Cain married a sister. We react against that idea today because of the many laws we have today concerning incestuous relationships. We have laws against incest because the children that result from that type of

relationship are often afflicted with a genetic disease. This is because all of us carry detrimental recessive genes within our chromosomes. Closely related family members may carry similar if not the same set of recessive genes. When we marry within the family, those recessives can pair up and result in a child who is genetically handicapped. But in the original creation, there was no such problem. These were the originally created beings, there were no genetic mutations to worry about.

When it comes to human origins, the Bible gives no room for anything other than God's personal fashioning of Adam and Eve. It is the fact that God personally created mankind that gives us such intrinsic value.

Noah's Flood

The flood of Noah is extremely important because several New Testament teachings depend on it. The Lord Jesus told us that the time right before He returns will be just like it was in the days before the flood. Peter reminds us that God's judgment fell once on the earth and He has promised to do it again. If the first judgment was not real, what are we to think of the second one?

But all too often what comes to mind when we think of Noah's flood is the image of a cute little round boat with the heads of fluffy sheep and tall giraffes and friendly elephants sticking out of it. We think of it as a harmless bedtime story like Cinderella or Scuffy the Tugboat, a remnant of childhood Bible lessons and storybook times. Did the flood of Noah really happen?

We are talking about an historical event and one that is very serious. It is spoken of in Genesis in a historical narrative. But evangelicals do disagree as to just how it happened. There are basically three different views.

One is the universal catastrophic flood account, where the flood was a world-wide event. It did indeed cover all the high mountains at that time, and it was catastrophic—lots of tidal waves and breaking up of the fountains of the great deep.

The other view is that the flood was universal—it covered the whole earth—but it was a tranquil event and probably did not leave any scars or sediments on the earth.

And the third view is that the flood was just in the Mesopotamian area. Since its intent was to destroy mankind, and mankind had not spread very far, the flood only had to cover the Mesopotamian area. Again, as with the creation account, we need to tell our kids what our conviction is. What do we think about it? And again, if you are not certain, if you are not sure about your view, go ahead and communicate your uncertainty as well. It is okay to be uncertain about some of these things; scholars do not really know everything about them, either. And we have to be ready to realize that the kids might not even like our particular interpretation, or they may have heard things in school, Sunday school, or church that may differ with our view. But it is okay to give our kids a little bit of room on these kinds of issues.

With all of these different interpretations of the flood, what can we feel safe telling our children? What is the point of the flood? What is the bottom line of this event?

The purpose of the flood of Noah was to destroy mankind as it existed at that time. Where scholars differ is just how far mankind had spread. Some suggest that the human population may only have been a couple hundred thousand, so they may have been contained in the Mesopotamian area. But if humans had been around for four or five thousand years, and they had a chance to multiply and grow, there may have been several millions or tens of millions of people spread across the earth. That may be why some suggest that, in order to destroy mankind, the flood had to be universal. But we still do not

know whether the flood was a catastrophic or a tranquil event, and so there is some room for discussion. I think all these different theories are helpful because they allow us to investigate God's Word to the best of our ability and try to determine what it really means.

There is one view of the flood—the universal catastrophic flood model—that has really captured the attention of much of the Christian community. Several organizations propose this model. In fact, you spent a couple of weeks in the [Grand Canyon](#) with one of these organizations investigating the flood model for the formation of the canyon. We want to address a few specifics about this catastrophic model of the flood of Noah. Would you give just a brief outline of this model?

This catastrophic model definitely suggests a very different scenario than the cute animals or the little round boat. We are talking about the breaking up of the fountains of the great deep and huge amounts of water rocking back and forth across the earth. The young earth creationists suggest that most of the sedimentary layers were formed during the flood. Most of the fossils that we find in those sedimentary layers, therefore, would have been laid down as a result of the flood of Noah. There should also be evidence around the earth of the catastrophic formation of all these sedimentary layers.

How close to the truth is this model? Does it explain everything?

There are a lot of things that it does explain. There is evidence for catastrophic origin for most, if not all, sedimentary layers. Organisms seem to require a very rapid burial in order for them to be formed as fossils. But there are problems with this model as well, and I think it is important that we recognize what those are. For instance, all the different types of sediment would have to be the result of just one event, a catastrophic flood. When we look at these sedimentary layers, we have sandstone, limestone, mudstone,

shale—all different types of rocks—but they all would have had to come from the same event, and that is a bit of a problem. The majority of Christian geologists believe that the strata are due to other events like river floods, deposits from big storms or hurricanes that occurred periodically or, in some cases regarding the sandstones, even desert sand dunes. While the catastrophic model is a captivating idea, I do not see a need to force ourselves to accept it or reject it at this time.

There is a lot of work to be done concerning this model. If you have a curious, science-oriented child, why not encourage him or her to pursue a career in science and become a part of the group that tries to investigate it?

Cavemen

Another question the kids are often curious about: Where do cavemen fit into the Bible?

Most creationists believe cavemen were the early survivors of the flood. Remember, if the purpose of the flood was to destroy mankind, then most of these fossils would be individuals who survived the flood or lived soon afterwards. Cro-Magnon man and Neanderthal man, and probably even fossils described as *homo erectus*, are all post-flood humans, descendants of Noah's three sons. The so-called primitive characteristics could be due to genetic in-breeding, faulty diets, and life in a harsh environment.

Racial Differences

Where do the different races come from? If we are all descended from one couple, Adam and Eve, why are there different colors of skin?

Races would have originated with Noah's three sons and their wives. Several sets of genes produce the wide variety of skin

color present in the current population. It is not difficult at all to envision genetically-similar populations becoming isolated after the flood and being the progenitors of the different races. Much of this genetic variability may have been contained in Noah's sons' wives, arising from genetic segregation that took place since the creation of Adam and Eve. Adam and Eve were probably people of intermediate skin color with most, if not all, of the genetic variability present in their genes.

Dinosaurs

We cannot talk about explaining creation to our kids without addressing the inevitable question of the dinosaurs. Where do dinosaurs fit into the Bible?

There is no question that kids today, particularly boys, are really enamored of dinosaurs. The answer depends on what your approach is.

If you are approaching creation from an old earth perspective, then the dinosaurs have been extinct for seventy or so million years and there is no reason to expect them to be mentioned in the Bible at all. Men and dinosaurs never existed together.

If, however, you are approaching creation from a young earth model, where everything was created in the fairly recent past, then dinosaurs must have existed at the same time as man because they were created on the same day, only ten to thirty thousand years ago. And that raises the question as to whether Noah took dinosaurs on the ark.

It is difficult to imagine a brontosaurus getting on the ark, and most creationists answer that by suggesting he probably did not take adult dinosaurs on the ark, just juveniles or small babies. The extinction of the dinosaurs then was probably due to the flood. Even if Noah did take some on the ark, apparently the climate and ecology of the earth had

changed dramatically as the result of the flood and they were not able to survive following the flood.

But it also raises the very distinct possibility that some dinosaurs may still exist in small, isolated pockets around the world. I do not want to add too much credence to this, but there are very intriguing stories—and I just want to call them stories for right now, not fact—from the Congo of different kinds of dinosaurs being reported by villagers and even some missionaries seeing very large reptile-like creatures out in the swamps. We have cave paintings from South America of dinosaur-like creatures. We have legends from all over the world about dragons, in China and the East and in Europe during the Middle Ages. We seem to have it in our heads that big reptiles are out there somewhere. It is a lot easier to think of them as being left-overs from the flood rather than having existed in small pockets for sixty or so million years since they became extinct in an evolutionary perspective. It is also feasible that dinosaurs could be mentioned in the Bible.

You mean under a different name?

Yes. For instance, Job 40 talks of a creature called “behemoth” in verses 15 to 24. He feeds on grass, he has strength in his loins,

What we have tried to do in this discussion is help parents understand the biblical accounts of creation in the early earth so that they can explain it to their children. Although we have presented a few options instead of absolutes, we can still tell our kids that God is the Creator and Sustainer of all things, and that the flood was a real event, although some of the details of how these things happened may escape us at this time. This approach allows us to communicate clear biblical truth while at the same time encouraging a child’s curiosity and desire to investigate God’s world. This is our Father’s world, and it delights Him when His children want to

discover it and search out the mysteries of the past, of history, of His story.

Notes

1. David Raup, "Conflicts Between Darwin and Palentology," *Field Museum of Natural History Bulletin*, vol. 30, no. 1 (1979): 25.
2. Kraus Dose, "The Origin of Life: More Questions Than Answers," *Interdisciplinary Science Review* 13 (1988): 348-56.
3. Stephen J. Gould, *The Panda's Thumb* (New York: Norton, 1980), 181.
4. Kenneth Miller and Joseph Levine, *Biology* (Englewood Cliffs, N.J.: Prentice-Hall, 1991), 335.

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See Also:

- [Pictures and Account of Ray and Sue Bohlin's Visit to the Galapagos Islands](#)
- [All the Probe articles on Origins](#)

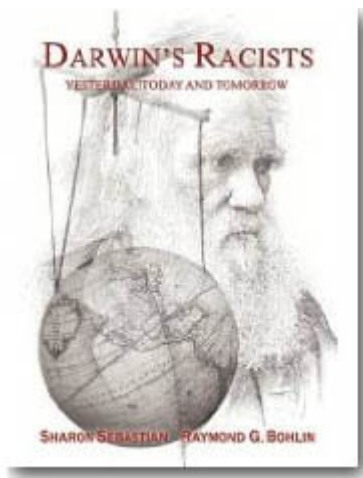
Was Darwin a Racist?

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.

You can order [a copy of the book](#) at the Probe Online Store.

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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/.

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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The Texas State Board of Education and Public School Content

The Facts

The Texas State Board of Education is a group of fifteen individuals, representing various districts in Texas. One of their roles is to decide on standardized, statewide guidelines on public school contents for grades K-12. These guidelines are delineated in the Texas Essential Knowledge and Skills (TEKS), which dictate the content for every subject for every grade level that students must master in order to graduate from a Texas accredited public school. Importantly, these guidelines also dictate what textbooks are approved for classrooms and selection criteria for universities. While these guidelines are not enforceable in the private school setting, private schools that are college preparatory must consider these guidelines in determining student advancement and subsequent collegiate eligibility.

The old draft of the TEKS, which was approved in 1998, states that students are expected to “analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.”[\[1\]](#)

The new draft of the TEKS, set for final approval in March 2009, states in the parallel section that students are expected to “analyze and evaluate scientific explanations using empirical evidence, logical reasoning, and experimental and observational testing.”[\[2\]](#) This line is in the introduction to the Biology class content under “scientific processes.” The content portion of the biology class has various topics listed, and what students are required to

master within each of these topics. Topics include *Cells and Cellular Processes*, *Molecular Genetics and Heredity*, *Evolution and Populations*, *Classification and Taxonomy*, *Biochemistry*, *Systems and Homeostasis*, *Ecosystems*, and *Plants*. Under each of these topics are specific items that students need to know.

The Contentious Issues

Those are the facts of the issue as best as we can describe them. However, these changes have created more than a little uproar from various groups that have a vested interest in how evolution is taught. The lines divided as such: advocates of the unquestioned teaching of evolution in public schools who were in favor of the new wording, and advocates of questioning certain aspects of evolutionary theory who were in favor of keeping the wording “strengths and weaknesses” within the TEKS. Many people that were for the new wording said that there were no weaknesses to evolutionary theory, or accused the other side of using this language of “weaknesses” to somehow smuggle creationism into the classroom. Many people who wanted to keep the strengths and weakness language intact accused the other side of censorship and subversively teaching an ideology and abridging academic freedom.

The Texas State Board of Education hosted a public hearing on Wednesday, January 21 (2009), where they welcomed testimony from individuals. The hearing would close at 12:40 p.m., no matter how many testifiers were left on the schedule. With a list of nearly a hundred, the Board only got through thirty testifiers. Some provision was made for trading up and testifying earlier, and the Board members invited select individuals to testify at the public hearing. However the majority of people there to be heard, including me (spot thirty-nine), and my husband (a science teacher who has taught both in public high school and private middle school and was spot sixty-three) went unheard. While each testifier had a three-minute time limit, an obviously divided Board asked several questions, either for clarification or to be on public

record for having asked.

Whatever one may read or hear in the media, most of the testimonies on both sides were articulate and intelligent, and the testifiers fielded their questions remarkably well. If you look at the audience, you might think it looked like a rally; the room was a bit of a zoo. But the testimonies were certainly at a higher level than some kind of emotionally-charged, rah-rah pep rally. Whether we agreed with them or not, we thought each testifier made good points.

Testimonies

While we do not necessarily agree with everything below, we have summarized the main points presented by each side.

For the Proposed Wording and Against “Strengths and Weaknesses” Wording

- *The old wording does not provide guidance to teachers, especially new teachers.*
- *Students are not necessarily capable of analyzing evolutionary theory, or are not necessarily capable of evaluating the current research.*
- *Academic freedom refers to the university level, and students do not have the same freedoms of speech as adults.*
- *The current draft has more specific wording.*
- *There is a possibility of litigation as has happened in other states.*
- *Students could fall behind if they are taught supposed weaknesses in evolutionary biology.*
- *“Strengths and Weaknesses” wording would block the publication and adoption of good textbooks. In fact, it could result in the adoption of subversive Creationist books*

designed to exploit this flaw in educational guidelines.

- These weaknesses are pseudoscience, or these weaknesses are from sources that engage in pseudoscience (no satisfactory definition of pseudoscience was given).
- The word “weaknesses” has changed in meaning due to the use of it for P.R. by certain Creationist groups, and therefore should not be included in the TEKS.
- Warning that people may doubt the integrity of Texas education if strengths and weaknesses are allowed.
- “Strengths and weaknesses” is inaccurate because there are no weaknesses. These supposed weaknesses are false and misleading information. Teaching weaknesses is likened to teaching that Grant surrendered to Lee.
- It’s better to get your information from the National Academy of Sciences than from “creationist” sources [quotes are mine].
- The peer review literature does not argue whether evolution happened, it is just researching how it happened. Whether it happened is not in question.

Against Proposed Wording and For “Strengths and Weaknesses” Wording:

- Even within the “strengths and weaknesses” wording, there has been silencing of students, and some teachers are intimidated to even broach the subject. Examples were cited by two of the testifiers.
- Cases of scientific hoaxes were cited by several people, including Piltdown Man and Haeckel’s Embryos. These are significant because many evolutionists will not admit these were hoaxes/errors. While they could be examples of how theories grow and change (something they agree is part of

science and should apply to evolution), they instead go unaddressed and worry those who respect true scientific research and achievement.

- No one area of science has answers to everything, so there are always weaknesses in theories.
- There has been no litigation in the last twenty years with the wording “strengths and weaknesses” and to say that this encourages pseudoscience, brings up the question as to whether Texas has been engaging in pseudoscience for the last twenty years.
- Standards should promote academic diversity and critical thinking. Some of the great minds in science were non-conformists.
- Children begin thinking abstractly at young adolescence, and their abstract and cognitive abilities continue to develop through high school. This stresses the importance of including critical thinking skills in the TEKS. Teaching strengths and not weaknesses does not promote abstract thinking.
- Teaching strengths and weaknesses is more honest.
- Examples were cited of students who did learn strengths and weaknesses and it worked well.
- Real science deals with strengths and weaknesses of a theory; why should evolution be held to a different standard?
- We should not proclaim high school students too dumb to understand (my note: two of the testimonies were given by high school seniors).
- “Evolution” is a tricky term because when someone says “evolution” they may mean three different things, one of which is a fact and two of which are conjecture: 1) Microevolution (fact), 2) Common Descent (theory), 3) Natural

Selection acting on mutations is how things evolve (theory). Student should distinguish this.

- Scientific consensus is only one part of science, the conclusion part. Students need to also know the scientific process.*
- There is a difference between scientific law, theory and hypothesis.*
- All theories are refined in the scientific process. Evolution does not have testable postulates. (This testimony was cut off due to time, but he was going to distinguish between origins and operations science).*

Assessment

My husband David is a science teacher who has taught high school science in public school and now teaches middle school science in a private, college-preparatory school. I have two degrees in science and am a research associate at Probe Ministries. Here is our assessment of the TEKS:

The wording “strengths and weaknesses” seems very intentionally omitted from the proposed version, which is suspect, but neither one of us can say definitively that it was left out in order to promote a particular agenda of misleading students or indoctrinating them by evolutionist advocates. “Analyze and evaluate” does convey something different than “analyze, review, and critique” and it does seem to be a very subtle difference that allows for slightly less freedom of discussion within the classroom; however, with this language, by itself, there may still be opportunity to have a rigorous discussion of weaknesses, especially if it falls under the category of “evaluating.” Its omission from the TEKS however, as one Board member pointed out, does communicate something as well, so we are skeptical of the perceived freedom with this language.

Another, and what I think is a blatant problem with the evolution curriculum, is in the specific wording within the evolution content section. Within the TEKS Biology section, there are several topics that the students must cover. Within each of those topics are specific things that they must master. In the TEKS proposed draft, the evolution section of high school biology requires students to:

A. Identify how evidence for common ancestry among groups is provided by the fossil record, biogeography, and homologies including anatomical, molecular, and developmental;

B. Recognize that natural selection produces change in populations, not individuals;

C. Describe the elements of natural selection including inherited variation, the potential of a population to produce more offspring that can survive, and a finite supply of environmental resources resulting in differential reproductive success;

D. Recognize the relationship of natural selection to adaptation, and to the development of diversity in and among species; and

E. Recognize the effects of other evolutionary mechanisms including genetic drift, gene flow, mutation, and recombination.[{3}](#)

The action verb at the beginning of each of these points is important because each verb is intentionally chosen, and from an educator's perspective has a technical meaning. According to Bloom's taxonomy of educational activities, verbs such as "describe," "define," or "identify" represent a low level of cognizance, while words such as "explain," "recognize," "illustrate" and "predict" are mid-level, and words such as "compare" "analyze," "interpret" are higher level of cognizance.[{4}](#) In all of the other science concepts taught in

biology, students are asked to “compare,” “investigate,” “predict,” “analyze,” and “interpret.” However, evolution is kept at a purely definitional level, meaning that even though the proposed TEKS include “analyze and evaluate” within the general scientific process section, there is no opportunity to do this when the students get to the evolution section; they are only required to essentially memorize definitions or memorize what fossils lead to common descent. Many testifiers claimed that students were free and in fact encouraged to discuss evolutionary theory. They said the “strengths and weaknesses” language was being replaced by the better, more specific “analyze and evaluate.” This is intentionally misleading. The general standards do read that way, but the evolution section itself is exempt from this rigid treatment in the new TEKS.

I was particularly unimpressed with Terrence Stutz’s article from the *Dallas Morning News*, in which he labeled the board members who wanted to include “weaknesses” as being aligned with “social conservative groups that in past have worked to cast doubt on science-based theories on the origins of life,” [{5}](#) when really, most of the testifiers and Board members that wanted “weaknesses” left in the TEKS, including my husband and myself, are arguing for academic freedom and free inquiry. The way evolution is handled in the proposal does nothing to promote even an analysis and evaluation, let alone an atmosphere of inquiry on a theory that is supposed to be the cornerstone of biology. [{6}](#)

The Vote and Results:

The Texas State Board of Education had a preliminary vote Thursday, and it was tied 7-7, which means that, so far, “strengths and weaknesses” language will not be in the next version of the TEKS (it requires a majority). However, the board has until March to make its final decision, and make a final vote.

While “strengths and weaknesses” is not in the current draft of the TEKS, the board did vote on some amendments that ask students to “analyze and evaluate” specific aspects of evolutionary theory, bringing the evolution science concepts up a notch (or two) on Bloom’s scale.

According to *Evolution News and Views*,[{7}](#) the wording change is as follows:

(7) Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:

(A) analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies including anatomical, molecular, and developmental;

(B) analyze and evaluate how natural selection produces change in populations, not individuals;

(C) analyze and evaluate how the elements of natural selection including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources result in differential reproductive success;

(D) analyze and evaluate the relationship of natural selection to adaptation, and to the development of diversity in and among species; and

(E) analyze and evaluate the effects of other evolutionary mechanisms including genetic drift, gene flow, mutation, and recombination.

Furthermore, the Board passed an amendment that asks students to “Analyze and evaluate the sufficiency or insufficiency of common ancestry to explain the sudden appearance, stasis, and

sequential nature of groups in the fossil record.”{8}
Unfortunately, media coverage on these particular amendments are scarce. We would consider these amendments a success, especially since they address the issue of low-level cognizance in the evolution requirements. Now they are at a level that seems much more appropriate for high school biology, and we feel will promote good critical thinking and intellectual inquiry. We also believe that these amendments will better serve to prepare our students for the intellectual rigor and higher level thinking skills that they will need at the collegiate level.

Texas State Board of Education
Public Testimony
Heather Zeiger, M.S.
Research Associate, Probe Ministries

I went to Texas public schools for junior high and high school. I knew then that I was going to pursue a career in science, and ended up choosing chemistry my senior year. I graduated in 1999, and at the time, I had received some education in evolutionary biology. That education mostly consisted of memorizing facts and definitions, but gave no indication that there was anything more to be discussed. By way of example, one of the things we learned in biology was the Miller Urey experiment. We learned that this was the prevailing theory on how life began, and this is how it worked. There was no further discussion on chemical origins, and as far as I knew from what I was taught in the public high school, scientists agreed that this was how it happened. Except . . . it turns out that there were and still are many questions about chemical origins. In fact, as I later learned, there is an entire field of study in which chemists deal with the very fundamental questions of how life began. There is more than a little contention among those who believe that life came from an RNA-based world and others who believe that

it was originally metabolic. There are still others who think that life beginning from purely chemical processes may not even be possible under our current theories.

What was presented as a boring little tidbit in our biology books, actually is an entire field of inquiry. Chemical origins is just one area of evolutionary theory; and as we all know there are evolutionary biologists still researching these issues, which means that there are still challenges or unexplained parts of the theory to be investigated. The students that go into science, the ones I've worked with, are fascinated by the unexplained parts of a theory, by the mysteries. I think it is a disservice to our children and to the scientific community to gloss over the places where a theory needs more work. We should encourage students to go on and become the next scientist to answer these questions in evolutionary theory. While the proposed draft does discuss strengths and limitations, in science, in general, it does not leave the evolution section open to this, but keeps it at a definitional level. I therefore contend that the Biology TEKS, science concept seven (evolution) should be phrased in such a way that would go beyond the less interesting part of science, identification and description of terms. And hopefully, this will open classroom instruction to analysis and discussion of current strengths and weakness within this important theory.

Texas State Board of Education

Public Testimony

David Zeiger

Texas SBEC Certified Science Composite Teacher for Grade 9-12

My name is David Zeiger and I am a certified composite science teacher for grades nine through twelve. I taught Chemistry and Physics for two years in Garland ISD, and now I teach seventh grade Life Science at Trinity Christian Academy, a private college preparatory school in Addison. In my relatively brief tenure as a science teacher, I have had to come to terms with a simple discouraging fact: most of my students will not love

science as much as I do, let alone become researchers, engineers, doctors, nurses, or even science teachers. In fact the National Science Foundation found that in 2000 only one third of college students earn bachelor degrees in science and engineering.[\[9\]](#)

Therefore, when I read the TEKS as the guiding structure for my curriculum, I have to ask what my job as a science teacher truly is. Am I wasting my time with two-thirds of my students? Memorizing the parts of a plant, reeling off the periodic table, or calculating using laws of motion; are these things that students are going to use again? Do I even want them to memorize a chart with the strengths and weaknesses of evolutionary theory? No. The things that every student can take with them are how to gain information from their environment, whether that environment is a job training manual, a relationship with their spouse, or a new technique for hammering a nail; how to test that new information against their previous experience and training; and most importantly, how to be flexible enough to change their ideas when it turns out they were wrong.

Those important methods of learning are included in the TEKS for non-biology science classes and in the non-evolution biology standards. When teaching science other than the evolutionary theory, students are asked to “compare,” “predict,” “investigate,” “explore,” “explain,” “analyze,” “interpret,” and “model,” activities from the whole range of cognizance. But, the proposed recommendations on evolution use language that refer to and limit the students to the simplest level of cognitive learning: memorization.

If we don't teach the simple fact that every theory has weaknesses, we don't teach young people true science. If we don't teach them to find and evaluate those weaknesses, we don't teach them to be humble in their search for truth. And if we don't teach them how to keep or reject those theories, we leave them as prey to whoever has a stronger opinion than

they do.

Please keep teaching students to analyze and evaluate scientific theories. Critical reasoning is one of the few things I know all my students will need and use every day of their lives.

Notes

1. 1998 TEKS, Section 112.43, (c), (3), (A).
 2. Section 112.43 (c), (3), (A) of proposed TEKS
 3. Proposed 2009 TEKS Section 112.43, (7)
 4. www.teachervision.com
 5. Terence Stutz, "Texas Board of Education votes against teaching evolution weaknesses," *Dallas Morning News*, January 24, 2009. tinyurl.com/bncw55
 6. Theodosius Dobzhansky, "Nothing in biology makes sense except in the light of evolution," *American Biology Teacher* 1973, volume 35, pp. 125-129.
 7. www.evolutionnews.org/2009/01/recap_texas_board_of_education.html
 8. Ibid.
 9. www.nsf.gov/statistics/seind04/c2/c2s3.htm
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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 assess 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.

“Shouldn’t the Statistical Improbability of Evolution Convince Open-Minded Evolutionists?”

Dear Dr. Bohlin,

Thank you for your excellent article [“The Five Crises in Evolutionary Development”](#) which I just completed reading. Very, very well done.

Here is a comment/question for you: The statistical improbability (impossibility) of macroevolution, whether Darwinian or sudden leaps, is so overwhelming that no other evidence should really be needed to discredit the theory. However, I’ve never seen the type of discussion of the statistical/probability aspect that I’d like to see. My feeling is if the statistical aspect were carefully developed and presented it would be sufficient to convince any reasonably open-minded evolutionist (an oxymoron?).

Thanks again for your excellent article. If you know of any good statistical analyses of the probability of evolution please tell me where to look.

I’m glad you found the article helpful.

Regarding probability, most biologists don’t really fully comprehend the argument from probability. To them, evolution happened, therefore the statistical studies must be missing something to come up with such impossible odds. Their eyes tend to glaze over with the many numbers and conditions. In my

graduate work at the University of North Texas in the late 70s, the one probability and statistics course we all took was largely seen as necessary evil and we all probably remember being told that statistics can be easily misused and you can prove anything with statistics. So while they all need some probability and statistics to get their population genetics articles published, they largely distrust the figures of others. Therefore anything trying to use probability to debunk evolution must be suspect.

A good book covering the general argument from probability against evolution can be found in Lee Spetner's *Not By Chance*. You can probably still find it at Amazon or at the ID website at www.arn.org.

Respectfully,

Ray Bohlin, PhD

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“What’s the Problem with the Evolution of Amino Acids?”

Dr. Bohlin,

I have heard you describe on “Point of View” the probability of amino acids forming proteins on their own as being astronomical. Can you direct me to an article or will you briefly describe to me why covalence is not a possibility when considering the formation of amino acids and eventually proteins?

There are two primary problems for the origin of proteins on

the early earth. The first is chemical and the second is informational.

The chemical problem arises from the nature of the peptide bond which links amino acids in proteins. In linking the carboxyl group of one amino acid to the amino group of the other, a molecule of water is released. Since almost all early earth scenarios take place in the presence of water, the high concentration of water will prevent the linkage from taking place. The high energy needed to cast off a molecule of water in an aqueous solution is very high. Cells overcome this barrier through the action of the ribosome, a combination of RNA and several proteins which allows the linkage reaction to take place in a protein fold devoid of water. But in the early earth there are no proteins or RNA.

The informational problem arises from the fact that not every sequence of amino acids is useful for life-giving processes. Current estimates suggest that as many as 200 different proteins are necessary for life. Each of these proteins requires a specific sequence of amino acids in order to function. One calculation that has been verified experimentally, shows that a 100 amino acid protein requires a specificity of sequence that has only a 1 in 10 to the 65th power probability of occurring by chance alone. This even allowed for most amino acids to be substituted by similar amino acids in the sequence. So one not only has to manufacture one protein but hundreds, and then bring them together in a membrane like structure, in order for life to take hold. The odds are enormous.

One other problem is also chemical. Amino acids are among the many organic compounds (made of carbon, hydrogen, and oxygen) that exist in two different structural forms called stereoisomers. One form will rotate polarized light to the left (left-handed) and the other will rotate polarized light to the right (right-handed). When amino acids are formed chemically, that is apart from a living system, both forms are

produced in equal numbers. However, the amino acids of proteins from living organisms are almost exclusively left-handed. No one knows of a chemical process to achieve this result.

A good technical summary of this and other problems can be found in Thaxton, Bradley and Olson's *The Mystery of Life's Origin*. Probe makes this book available on our website for \$10.

Respectfully,

Ray Bohlin
Probe Ministries

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