

# The Galapagos Islands: Evolution's Sacred Ground

*Dr. Bohlin helps us understand the significance of the Galapagos Islands in the birth of the evolutionary theory of Charles Darwin. Based on personal observation on these unique isolated islands, he explains why he is not convinced that the animals of these islands make a case for the evolution of all living things.*

## What's So Important About the Galapagos Islands?

The Galapagos Islands are located in the Pacific Ocean, 650 miles off the coast of Ecuador in South America. They are isolated from any other island group or land form.

What's so important about the Galapagos Islands? Here are four reasons:

First, because they are extremely isolated, the Galapagos Islands are home for dozens of species of both plants and animals found nowhere else in the world. The Galapagos Tortoise, for example, is the largest reptile found anywhere on the planet, and it lives longer than any animal known to man. The oldest is currently over 170 years old and lives in a zoo in Australia. Other unique animals include the Flightless Cormorant, the Marine Iguana, the Galapagos Penguin, and Darwin's Finches.

There are even unique forms of plants including numerous forms of cacti and at least thirteen species of sunflower or daisy-like plants, one of which is a "sunflower" tree with bark and no tree rings.

Second, Darwin's visit to the Galapagos for five weeks in 1835

on the HMS Beagle provided the starting point for the development of his theory of natural selection. Darwin had believed that God individually created each species. However, when he saw and studied variations between similar species from island to island, he correctly reasoned that a natural process made more sense. However, he eventually threw the baby out with the bathwater by reasoning that all species arose by a natural process through natural selection. Darwin's Finches continue to be used as a textbook example of evolution today.

Third, similar to the Hawaiian Islands, the Galapagos Islands are volcanic. There is a geological hotspot deep in the earth's crust underneath the Pacific tectonic plate where magma flows to the surface. The hotspot remains stationary. However, as the Pacific plate moves from west to east, new volcanic islands begin to appear beneath the sea until they eventually poke above the surface to create a new Galapagos island. The youngest of the islands is the island of Fernandina which is the westernmost island. It is estimated geologically to be 800,000 years old. The oldest islands off to the east are estimated to be 3 million years old.

Fourth, two major ocean currents affect the climate of the Galapagos. First, from the south comes the Humboldt Current from Antarctica. Second, a deep-water current comes from the west. Upon reaching the islands, this cold deep water current brings with it a large supply of nutrients that feed the bottom of the food chain. Consequently the western waters of the Galapagos are colder and richer in marine life. These cold-water currents keep the temperature of the islands rather moderate for islands on the equator. In the Galapagos, the waters usually range from the 60s to the 70s F (15-22 degrees Centigrade), creating a more temperate climate for these equatorial islands.

All these factors combine for a most unique experience. The Galapagos have been a "poster child" for evolution ever since Darwin. We'll see how well that holds up.

# What Evidence of Evolution Do Darwin's Finches Provide?



[Click to see Ray's picture report of his trip to the Galapagos Islands](#)

In May 2003 I had my first opportunity to visit the Galapagos Islands with a group led by several scientists from the Institute of Creation Research. Our goal was simply to see for ourselves many of the unusual animals and plants which so heavily influenced Darwin in the development of his theory of natural selection.

Look in almost any high school biology textbook and you will find some mention, if not a whole section, on what are now known as *Darwin's finches*. Darwin's finches are comprised of thirteen different species of small finches that arose from a single species that colonized the islands. The finches have adapted to differing food sources ranging from different size seeds, to insects, to cactus flowers, to even blood. The major feature of these finches that has changed is the size and shape of their beaks, but the differences are very subtle.

When we got our first glimpse of the finches we found out just how subtle the differences in beak size and shape really are. Without being able to compare two or three birds right next to each other, we found it virtually impossible to identify them. This observation confirms recent research by Princeton researchers Peter and Rosemary Grant. The Grants have come to the Galapagos Islands every year since the mid-1970s. They have banded, measured, and weighed literally thousands of

finches of nearly all species.

Of the thirteen species, six are called ground finches, and they feed on different size seeds and cactus flowers. These finches particularly differ almost exclusively in their beak size or shape. The Grants have found that these finches will “evolve” to larger and smaller beaks depending on the seed availability based on a wet or dry rainy season.

They also learned that most of these six ground finches will interbreed, and the hybrids are fertile, meaning they can also breed among themselves. This information is quite startling because it means that these six species may actually be one species. And the actual degree of change is quite miniscule. The average beak size may change by only a half a millimeter from dry to wet season. These six finches are also indistinguishable in their mtDNA.

These species are so similar in the field that some of the workers and guides from the Darwin Research Station on the Galapagos have a saying: “Only God and Peter Grant can identify Darwin’s finches.”

As an icon of evolution, the finches are far less than hoped for.[\[1\]](#) Yes, they do document the reality of natural selection. But the degree of selection is quite small and seemingly insignificant. They are a wonderful example of the ability God has given His creatures to be fruitful and multiply in a fallen world.

## **Why Save the Galapagos Tortoise?**

The word Galapagos is Spanish for *saddle*. The islands were named for a particular variety of Galapagos tortoise known as the saddleback. These tortoises inhabit the drier islands and feed primarily on many varieties of prickly pear cactus. The saddle refers to a striking feature of their shell that forms a large space just above the neck that allows the tortoise to

reach high to grab a succulent piece of cactus.

Since the islands were named for the saddleback tortoise they are a symbol of the islands. As I mentioned earlier, these tortoises are the largest living reptiles. They are also the longest living animals in the world. There is a female Galapagos tortoise in a zoo in Australia by the name of Harriet. Harriet was reportedly taken from the Galapagos Islands by Charles Darwin himself. She eventually was taken to Australia and is reported to be 173 years old, born around 1830. This would make her the oldest living creature on earth.

Harriet is a dome tortoise as opposed to the saddleback variety. Dome tortoises eat low-lying grasses, vegetation and fruits. When Darwin came to the Galapagos Islands in 1835, there were approximately 300,000 tortoises on eleven islands. There are five different varieties on the largest island, Isabella. The five varieties are found associated with the five large volcanic craters where water accumulates and grass is abundant. The other ten varieties inhabited a specific island, one variety of tortoise per island.

The islands were a favorite stopping place for whaling ships and ships crossing the Pacific. Sailors would come on shore and round up twenty to thirty tortoises to be used as food on the long voyage. A tortoise could remain alive with little or no food or water for months, providing fresh meat for the long voyage.

In addition, as people began colonizing the islands, they brought with them rats and mice that would eat the tortoise eggs. Introduced goats and pigs competed with the tortoises for food. Consequently, the tortoise population has been reduced to around 20,000. Some of the specific island varieties have gone extinct. Lonesome George has become the symbol of the plight of the giant tortoise. He is the only remaining member of the tortoises from Pinta Island, and he seems to be refusing to breed.

The Darwin Research Station on Santa Cruz Island in the Galapagos is involved in an extensive captive breeding program, trying to reestablish the tortoises in areas where they have disappeared. But why? If evolution is true, then let natural selection take its course. If they survive, fine. If not, that's just life in an evolutionary world. In Genesis, however, we are commanded to have rule and dominion over God's creatures. Wherever practicable, we have a biblical mandate to preserve the creatures He has made in the environment He provided for them (Psalm 104). So the Darwin Research Station is unwittingly acting on a Biblical worldview.

## Strange Creatures of the Galapagos

Though the Galapagos Islands are world famous, they didn't particularly impress Darwin when he first arrived. In his book, *Voyage of the Beagle*, he wrote, "Nothing could be less inviting than the first appearance. A broken field of basaltic lava, thrown into the most rugged waves, and crossed by great fissures, is everywhere covered by stunted, sunburnt brushwood, which shows little signs of life." {2}

Though we may disagree with Darwin on many of the conclusions he drew from his observations of the Galapagos wildlife, he was nonetheless an excellent observer and rather humorous reporter. For instance, one of the well-known inhabitants of the Galapagos is the marine iguana, the only lizard in the world to feed in the sea. Darwin described it this way,

*"It is extremely common on all the islands throughout the group, and lives exclusively on the rocky sea-beaches, being never found, at least I never saw one, even ten yards from shore. It is a hideous-looking creature, of a dirty black colour, stupid, and sluggish in its movements."* {3}

Darwin aside, these creatures are fascinating. They feed on algae and seaweed close in to shore. They swim easily with a

serpentine movement with their limbs tucked close to their body. Since the water is so cool, they need several hours to sun themselves before entering the water for breakfast. They will only stay in the sea for about twenty minutes and never longer than an hour. When warming themselves, they lie perpendicular to the sun so their body is fully exposed to the sun. When maintaining their temperature they will face the sun directly and lift their chests off the ground to allow the sea breeze to provide ventilation.

The marine iguana's cousin, the land iguana eats cactus pads and leafy vegetation and never ventures toward the sea. They also didn't impress Darwin terribly much. He described them this way.

*"We will now turn to the terrestrial species, . . . Like their brothers the sea-kind, they are ugly animals, of a yellowish orange beneath, and of a brownish red colour above: from their low facial angle they have a singularly stupid appearance. . . . In their movements they are lazy and half-torpid."*[\[4\]](#)

Evolutionists suggest that these two species derived from a common ancestor over ten to twenty million years ago (although the oldest island is only 3 million years old!). But we learned that these two species would interbreed on occasion. The hybrids live for only seven to eight of the usual forty years, and their eating habits are strangely intermediate. The hybrids will eat cactus but not leafy vegetation, and will eat seaweed and algae but only at low tide when they can scramble over the rocks to get it. They won't enter the water. This level of hybridization makes it unlikely they are as old as evolutionists suggest.

## **Evidence for Evolution on the Galapagos**

## Islands?

Thus far we have reviewed some of the amazing animals and plants found on the Galapagos Islands in the Pacific Ocean. The mockingbirds, tortoises, and finches played a role in the formulation of Darwin's theory of natural selection. The Galapagos Islands and their varied and diverse wildlife continue to serve as examples of evolutionary change.

In my brief five-day visit to the Islands, I made a number of observations that cast doubt on the evolutionary significance of these islands.

Earlier this week we talked about Darwin's finches. These thirteen finches most likely are descended from a flock of more than thirty finches that colonized the islands about 2 million years ago according to evolutionists. They vary considerably in their beak size and shape as they have adapted to different food sources. As much as these finches have been studied, there is still a great deal we don't know.

For instance, we know nothing of the genetics of beak size and shape. It's certain that beak size is a heritable trait, but just what the genetic cause of the variation is, we don't know. As we said earlier, there may be as few as six actual species of finches on the islands, not thirteen. The changes in beak size and shape may simply have been due to genetic variation the original flock carried with them to the islands in the first place.

The changes between species are very small as we found out trying to identify them. The selection that has been documented varies only from dry to wet years and no overall trend has been observed. So Darwin's finches are not much of an example of evolution after all.

Another strange creature on the Galapagos Islands is the flightless cormorant. Cormorants are birds that inhabit the

shores of lakes, rivers, and oceans. They usually feed by diving into the water for fish. Cormorants will then perch above the waters surface and dry their feathers by holding their wings out for maximum air exposure. Flying requires dry wings.

The flightless cormorants of the Galapagos have wings so reduced that they are unable to fly at all. They catch fish by swimming in the water much as a penguin does using their large powerful feet for propulsion. The reduced wing size is probably due to a single mutation that short-circuits wing development in the cormorant chick. The change is indeed quite dramatic, but the change involves a loss of a feature, not the gain of a new adaptation. This is often the case in the origin of new adaptations. Something is lost, not gained. Evolution must be able to explain the gain of new features, not simply explain how an organism managed to survive when it lost an important structure. So even the dramatic case of the flightless cormorant is not real evidence for evolution.

The Galapagos are a naturalist's wonderland. They guard their mysteries in a shroud of isolation and time. They are a good example of the fact that there is much to learn about the world God created.

## Notes

1. Jonathan Wells, *Icons of Evolution* (Washington, DC: Regnery Publishing 2000), p. 159-175.
2. Charles Darwin, *The Voyage of the Beagle*, Harvard Classics (Cambridge: Harvard University Press), p. 377-378.
3. Ibid, p. 390.
4. Ibid, p. 392.

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# PBS Evolution Series

## Darwin's Dangerous Idea

Some evolutionists are definitely worried. Creation, intelligent design and a general dissent concerning Darwinian evolution continue to gain ground—so much so that a deliberate counterattack has been launched. Using scientists from around the world, professional defenders of evolution, beautiful nature photography, computer graphics and simulations, the prestige of the PBS NOVA series and the financial backing of Microsoft billionaire Paul Allen, a monumental defense and celebration of evolution has been produced.

The new PBS Evolution Series is a seven part, eight hour documentary originally aired on PBS stations around the country in late September of 2001 and rebroadcast in May and June of 2002. Accompanying the video series is an interactive Web site, 360-page companion book, coordinated teacher training and education, and a determined publicity campaign aimed at getting the series into the nation's high schools.

The explicit goals of the series are to help students understand the critical importance of evolutionary theory in understanding so many scientific and health issues of today—from AIDS to antibiotic resistance to fighting agricultural pests to even how we choose a sexual partner. The producers set out to establish the overwhelming evidence behind evolution and the soundness of the science behind it. They specifically sought to pursue solid science journalism and forego the religious realm.

Essentially, the series has failed on all counts. This beautiful documentary is loaded with speculation, exaggerated

evidence and claims, glossing over of legitimate controversy, and a persistent hostility towards any religious perspective deemed incompatible with evolution.

Episode One begins with a dramatization of a conversation between Charles Darwin and Captain Robert Fitzroy of the HMS Beagle in South America as Darwin is purchasing a fossil. The fictitious conversation clearly pokes fun at the Biblical account of the flood. Darwin was nowhere near as skeptical as portrayed, and Fitzroy was nowhere near as literal either. This opening scene lays the groundwork for a continual assault on history and the evidence to make evolution look as positive as possible and opponents of evolution as silly as possible.

This two-hour opening episode crosses paths with religion several more times in discussions of the philosophical meaning of evolution in an interview of Kenneth Miller, a Darwin defender who finds no incompatibility between his Christian faith and Darwinian evolution. In this opening episode the producers present a confusing contradiction. On the one hand Darwin's dangerous idea precludes any true meaning to life and on the other hand, Darwinian evolution is completely compatible with an informed Christian faith. For more detailed analysis of this episode consult the Discovery Institute's free Viewer's guide available on the Internet at [www.reviewevolution.com](http://www.reviewevolution.com).

## **“Great Transformations” and “Extinction”**

Perhaps the most foundational episode is Episode Two: The Great Transformations. One's expectation would be the presentation of numerous persuasive transitional forms demonstrating without doubt, the common ancestry of all life. Instead we are treated to a certainty based on the usual arguments from authority, selective fragmentary fossil evidence, and speculative molecular mechanisms.

The opening segment presents the mounting evidence for the

amazing transition from a terrestrial wolf-like vertebrate to modern aquatic whales. Lots of fossils and reconstructions are paraded before us, unfolding the supposed story of whale evolution. Complete skeletons are pictured with no indication that they are based on very partial fossil finds. The overall transitional series is discussed with certainty despite the fact that evolutionists themselves admit that the known members of the transitional series are not thought to be the actual members of the transitional series but just representative of what the actual transitional species may have looked like.[\[1\]](#) Also missing is the admission that, by the very nature of fossils, it can never really be known if any one fossil was ancestral to another.

Also featured in this episode is the stunning Cambrian explosion of animal life forms featuring Simon Conway Morris. Morris freely admits that "this sudden appearance of the fossils led to this term, the Cambrian explosion. Darwin, as ever, was extremely candid, he said, Look, this is a problem for my theory. How is it that suddenly animals seem to come out of nowhere? And to a certain extent that is still something of a mystery." As the segment develops, no attempt is made to explore or resolve this mystery. The experts make only vague references to evolution tinkering with what already exists. But even tinkering is a design activity, design with a purpose. Natural selection would be better described as a blindfolded man trying to navigate a minefield.

Episode 3 explores the evolutionary significance of extinction. Both the great Permian extinction of 250 million years ago and the KT extinction of dinosaur fame of 65 million years ago are explored and make fascinating stories. Their relation to evolution is obscure, however. Mass extinctions supposedly open up the playing field for new and diverse species to evolve due to less competition. But Darwinian natural selection supposedly thrives on competition. The segments on biological invaders, while important in and of

themselves, have little to add to the evolutionary debate. Biological control has been practiced for centuries with no knowledge of evolution.<sup>[2]</sup> Once again, we witness lots of authoritative posturing but little evidence for evolution.

## **“The Evolutionary Arms Race” and “Why Sex?”**

For many years medical authorities have been warning of the dangers of infectious bacteria becoming resistant to antibiotics. The overuse and misuse of antibiotics in western society has led to an increase in the number of strains of bacteria that are resistant to our primary defense against infection. In Episode Four of PBS’s *Evolution Series* titled “The Evolutionary Arms Race,” we are told this is evolution in action.

First, this statement leads to the conclusion that knowledge of evolution is essential to designing adequate health care. And second, labeling antibiotic resistance as evolution in action implicitly states that evolution is a fact, since antibiotic resistance is a fact. This is another case of a selective use of evidence. What the producers of *Evolution* don’t say is that the mechanisms for antibiotic resistance have been known for years. Usually the capacity to resist antibiotics has always been in the bacterial population and does not result from mutation. Even when a mutation is responsible, a new function is never evolved, just the damaging of an existing function. Sometimes the mutation results in the antibiotic being expelled from the cell faster or taken in more slowly. This doesn’t create a new species and doesn’t fundamentally change the organism.

Another factor left out of the discussion is that antibiotic resistance always comes with a cost of its own. Antibiotic resistant bacteria are always inferior to the original wild-type bacteria. Their growth is stunted. Sometimes these costs

can be compensated for but also at additional costs. Resistant bacteria are not better bacteria. Remove the antibiotic and they quickly lose out to the original wild-type bacteria. Therefore, to suggest that in the case of resistant tuberculosis that the bacteria evolved right inside the human host is highly misleading. The bacterial resistant forms were already present, the bacterium has not changed or evolved at all.

While the episode gives numerous examples of natural selection on a micro scale, the evidence discussed tells us nothing of how antibiotic resistance arose in the first place or how ants, molds, fungi, and bacteria first became intricately associated.

The fifth episode contains perhaps the least science and relevance to evolution, but will certainly be the most entertaining and even titillating for high school students. The episode "Why Sex" tries to ascertain the purpose and even evolution of sexual reproduction. While containing some helpful information and case studies, the program is full of speculative storytelling and an overload of sexual displays and sexual acts from fish to lizards, to birds, to chimpanzees and even a highly unnecessary and suggestive encounter between humans.

Also included is a highly controversial, yet factually presented discussion of evolutionary psychology and one researcher's ideas that all forms of human artistic endeavors are little more than sexual displays. Some of their own previously used evolutionary experts would find most of this episode an incredible waste of time and money.

## **"The Mind's Big Bang" and "What About God?"**

The uniqueness of human beings presents a difficult evolutionary puzzle. So much of who and what we are is

categorically different from other animal species that trying to account for it by mutation and natural selection presents a tough challenge. In Episode Six, "The Mind's Big Bang," we unfortunately don't get much of an answer.

The episode begins by documenting the amazing human capacity for art in the caves of France. This launches a long series of segments that document the early appearance of artistic expression that has its roots in the development of tool making. Eventually this explosion of capacities rooted in the brain is traced to the remarkable development of human language. As in other episodes there is lots of speculation about the selective advantages of language, but this tells us nothing of how language evolved. The discussion gives the impression that if we can just discover what language is used for, we will know how it evolved. This is typical evolutionary story-telling masquerading as science.

The Cambridge Encyclopedia of Language candidly admits that "For centuries, people have speculated over the origins of human language. . . . [but] the quest is a fruitless one. . . . We have no direct knowledge of the origins and early development of language, nor is it easy to imagine how such knowledge might ever be obtained."[\[3\]](#) The Discovery Institute's Viewers Guide also notes that we are told that language was the key to our becoming human. In Episode Two, however, we were told it was the ability to walk on two legs and in Episode Five it was using our brains to choose sexual partners. This confusion of "key events" exposes them for the speculation they truly are.[\[4\]](#)

The final episode "What About God?" reveals the entire series as the propaganda it is meant to be. Here we meet the old science vs. religion argument in all its glory. The Evolution producers go to great lengths to distort the controversy to their own ends. The Scopes trial and the Sputnik-induced revolution in science education are neatly packaged and distorted as science vs. religion. The inquiring and

passionate science students and professors who have no quarrel with evolution are favorably portrayed against uneducated parents and naïve Bible literalists. Theistic evolutionist Keith Miller is pictured as a liberator to Wheaton College students who don't want to be perceived as unintelligent.

What becomes unmistakably clear in this episode is that the reigning naturalistic stranglehold on science education is to be maintained at all costs. Those who oppose it, risk being branded as dangerous or stupid or ignorant or all three. Censorship of facts contrary to evolution is justified in the name of science. The bottom line is that "It's OK for people to believe in God, as long as their beliefs don't conflict with Darwinian evolution. A religion that fully accepts Darwin's theory is good. All others are bad." {5}

## The PBS Evolution Web Site

Located at [www.pbs.org/wgbh/evolution](http://www.pbs.org/wgbh/evolution), the PBS Evolution Web site is a goldmine of information and teaching suggestions along with interactive games and exercises aimed at sharpening one's evolutionary skills. But visitors should also expect that much of the information contained here employs the same sleight of hand that the video series uses in relating evidence for evolution. With such a great volume of information available at the *Evolution* Web site, I will direct my attention to one article as an example. Under the main heading of "Change," an essay is offered critiquing Intelligent Design. The essay is authored by Kenneth Miller, a Brown University biology professor, featured in the first episode as a Roman Catholic who sees no problem with evolution.

The essay is titled "Life's Grand Design" and purports to explain how evolution accounts for the design of nature far better than an intelligent designer would. His entire discussion revolves around the design of the human eye. {6} On page one Miller presents the problem. The eye is exquisite in

its design, accomplishing the wondrous effect of color vision with a very complicated design. How could it possibly have evolved one step at a time? On page two, Miller begins his response with the standard blind watchmaker explanation from Richard Dawkins. Miller emphasizes the gradual slight improvements and that all those that are positive will be selected. This is not necessarily true. It is well known that some genetic changes will be so slight that they do not offer a significant enough selective advantage and therefore, will be lost. Miller ignores the uncomfortable details.

Miller then describes how easy it would be to build an eye from just a few light-sensitive cells. But he starts with "light-sensitive cells." Where did these come from? How did they become light sensitive? The molecular mechanism of light sensitivity is quite complex and one of Michael Behe's examples of irreducible complexity. But once again Miller ignores the uncomfortable details. Miller states, "it is possible to draw a series of incremental changes that would lead directly to the lens and retina eye." But you know, I'm not interested in whether it can be drawn. I want to know how it would evolve biologically.

Finally Miller delivers the *coup de grace*; the eye exhibits design flaws that any engineer would never employ. You see, the human eye seems to have things a little backwards. The light-sensitive cells face the back of the eye or the retina, instead of the front of the eye where the light comes from. Therefore, the incoming light must pass through the nerve cells and blood vessels first, potentially distorting the image. Not only that, but the nerve cells eventually bunch together before punching through the retina en route to the brain, therefore creating a dangerous blind spot. Surely an intelligent designer wouldn't do it that way. The eye is therefore a great example of evolution at work. Evolution simply arrives at the best available solution.

But again, Miller ignores the details. He doesn't reveal that

the layer of cells behind the nerve cells, behind the blood vessels and behind the photoreceptor cells, is an immensely important group of cells we will abbreviate as the RPE (Retinal Pigmented Epithelium). The RPE is necessarily in close proximity to the photoreceptor cells, the rods and cones, because the RPE replenishes the necessary molecules for vision. With the RPE at the very back of the retina, these cells act as an absorptive layer to get rid of excess light. Without the RPE we would be blinded by ordinary sunlight. Also the absorption of excess light sharpens our vision. So the designer has a dilemma. Both the nerves and blood vessels must be in front of the rods and cones or the RPE must be in front because both must be in direct contact with the photoreceptor cells and they all won't fit and function together. Something will get between the light and the light sensitive cells. Putting the blood vessels and nerves in front of the rods and cones creates a very mild light filter, but does create a blind spot where the nerves bundle together. However, putting the RPE between the light and the rods and cones would create a much more detrimental filter and diffusing agent. The vertebrate eye is structured properly when all factors are considered.

“The vertebrate eye provides an excellent example of functional— though non-intuitive design. The design of the retina is responsible for its high acuity and sensitivity. It is simply untrue that the retina is demonstrably suboptimal, nor is it easy to conceive how it might be modified without significantly decreasing function.”[\[7\]](#)

As we have seen in this essay, evolution can offer some impressive evidences on first glance. But time and time again, the intricacies of design are in the details.

## Notes

1. The story of whale evolution has indeed grown more

sophisticated over the last 10-15 years. Indeed, this was one transition that many creationists had a great deal of fun with. How could a land mammal evolve into a whale? How could the transitional forms possibly be functional on land or in water? If one were to scan the presumed transitional series (found on page 138 of *Evolution* by Carl Zimmer, Harper Collins, 2001) it is quite impressive evidence for evolution. The transitional series, while a little jerky with certain gaps remaining, appears gradual enough and the fossils seem to appear in the expected order and strata. But as always, the truth is in the details. Two recent articles investigate the evidence with some detail and rigor. Ashby Camp has written a fine summary (last modified March 11, 2002) and critique of the fossil evidence for whale evolution that is available from the TrueOrigins website at [www.trueorigins.org/whales.asp](http://www.trueorigins.org/whales.asp). Also, John Woodmorappe has analyzed the mixture of characters in some of the whale-like fossils in his article "Walking whales, nested hierarchies, and chimeras: do they exist?" in *TJ* 16(1) 2002: 111-119. *TJ* was formerly *Creation Ex Nihilo: Technical Journal*.

What we learn from these articles is that the true land mammal ancestor of whales is still in dispute. The pakicetids, the first "intermediate," are true land mammals with a few potential aquatic features in their inner ears. The next group known as ambulocetids show some aquatic features but other features distance them from actual whale ancestors. Many of these are not in the proper stratigraphic position. The pakicetids and ambulocetids are all less than 10 feet long; the fully marine *Basilosaurus* are all over 50 feet in length. Even by evolutionary standards there isn't enough time between these species to evolve even this simple increase in length. None of the species depicted on page 138 of *Evolution* are thought to be actual ancestors of modern whales. The diagram is actually drawn to indicate this fact but most people looking at it won't come away with that impression. Each species is diagrammed as an offshoot of the lineage but not an actual transitional form. How come we always find just "types"

of ancestors and never the ancestors themselves? Some character or another always disqualifies the intermediate in question. There seems to be a deeper lesson here that most evolutionists are unwilling to face.

2. The documentation of human interference in the ecosystems of Hawaii and Thailand are summed up with a plea to slow down the rate of human induced extinction and allow nature to take its own more natural and easy-paced course. This implies, however, that humans are somehow outside the loop of nature. If we are just another biological species, then we are only acting according to our own biological nature. How or why should this be suppressed? As in past mass extinctions, the strong, opportunistic and lucky will survive. Perhaps that includes us, perhaps not. In the naturalistic worldview of the series, what's the difference? This is another example of stealthily applying a Christian worldview that gives intrinsic value to nature while maintaining the guise of naturalism. In a naturalistic worldview, nature just is. Choosing to interfere on nature's behalf indicates intrinsic value and worth that can only come from outside nature itself. In the Christian worldview, this comes from God.

3. David Crystal, *The Cambridge Encyclopedia of Language*, Second Edition, Cambridge: Cambridge University Press, 1997, p. 6,290.

4. [www.reviewevolution.com](http://www.reviewevolution.com), p. 92.

5. Ibid, p. 107.

6. [www.pbs.org/wgbh/evolution/change/grand/](http://www.pbs.org/wgbh/evolution/change/grand/), p. 1-6.

7. George Ayoub, On the design of the vertebrate retina, *Origins and Design*, Vol. 17(1): 19-22. This article can also be found on the web at [www.arn.org/docs/odesign/od171/retina171.htm](http://www.arn.org/docs/odesign/od171/retina171.htm).

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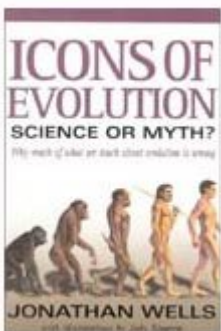
# Icons of Evolution

*Dr. Ray Bohlin reviews Jonathan Wells' book Icons of Evolution, which exposes the lies and distortions that constitute evolution's best textbook "evidence."*



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

## Lies and Distortions Masquerading as Truth in the Halls of Science



Most everyone was required to take biology in high school, and many who went on to college likely took an introductory biology course as an elective, if not as a beginning course for a biology major. Required in most of these courses, mainly because of its inclusion in the textbook, was a section on evolution. Therefore, most people with a secondary education or above are familiar with the more popular evidences and examples of evolution nearly all textbooks have been using for decades. These include the peppered moth story of natural selection, Darwin's finches as an example of adaptive speciation, and the ubiquitous tree of life with its implied common ancestor to all life forms.

These familiar evidences of the creation story of our early 21st century culture are what Jonathan Wells (Ph.D., UC Berkeley, molecular and cell biology; Ph.D., Yale University, religious studies) refers to as the *Icons of Evolution* in his book by the same name (Regnery Publishing, 2000). Wells focuses on ten of these icons and meticulously exposes them to be false, fraudulent or at best, misleading. Many of these difficulties have been pointed out before and are known to a

few, but Wells adds a level of sophistication and packages them in a form certain to get the attention of everyone in the educational establishment. This book is not a plea for creation in the schools or a selective and picky rant against trivial details. It is a frontal assault against some of the most cherished and revered "proofs" of the evolution story. There will be no shortage of controversy around this extensively researched and well-written exposé. If these "Icons" are the best evidence for evolution, or at least the easiest evidence to explain, then one is left wondering what the future of evolutionary instruction could be. Even further, what future might there be for evolution itself?

Wells begins with an icon that itself starts at the beginning, the Miller-Urey experiment. This purports to show that molecules necessary for life could have arisen by simple chemical reactions on an early earth. The Miller-Urey experiment uses an atmosphere of reduced gases: ammonia, methane, water vapor, and hydrogen. Then it adds some energy in the form of sparks, and produces as Carl Sagan said, "the stuff of life." Dating back to 1953, this experiment has been around for nearly fifty years. The problem is that for at least the last twenty-five years origin of life researchers realized that this atmosphere does not reflect that of the early earth. Many textbooks will begrudgingly admit this, but include the experiment anyway. One can only guess the reason: no other simulated atmosphere works. I suppose that textbook writers would suggest that since we "know" some form of chemical evolution happened, they are justified in not representing the facts accurately!

## **Tree of Life, Homology, and Haeckel's Embryos**

The tree of life is ubiquitous in evolutionary literature. The notion that all of life is descended from a single common ancestor billions of years ago is how many would define

evolution. But the actual evidence argues strongly against any such single common ancestor, and most animal life forms appear suddenly without ancestors in what is known as the Cambrian explosion of nearly 543 million years ago in evolutionary time. The Cambrian documents life forms so divergent that one would predict a fossil record covering hundreds of millions of years just to document the many transitions required from the first multicellular animal ancestor. Current estimates suggest this change took place in less than 5-10 million years. Yet the tree of life, documenting slow gradual changes, persists.

Another critical evidence for evolution over the years has been homologous structures. The forelimbs of all mammals, indeed all vertebrates, from bats to whales to horses to humans, possess the same basic bone structure. This is routinely held up as evidence of having descended from a common ancestor. The different forms simply tell of different adaptive stories, resulting in their unique functions relying on the same basic foundation. What becomes puzzling is, first, a confusion of definitions. *Homology* is **defined** as structures having arisen from a common ancestor.<sup>{1}</sup> But then homology cannot be used as an evidence of evolution. Something is very wrong, yet textbook orthodoxy concerning homology continues to perpetuate a myth that has been exposed for decades. Second, supposed homologous structures do not necessarily arise through common developmental pathways or similar genes.

Next, Wells turns his attention to perhaps the most inexcusable icon of all: similarities in vertebrate embryos originally pointed out by Ernst Haeckel in the 19th century and used by Darwin in *The Origin of Species* as a powerful evidence for common descent. Haeckel's vertebrate embryos are shown passing through a remarkably similar stage early in development and only later diverging to the specific form. This passage through a common form early in development was seen as obvious evidence for a "community of descent." Yet, once again, the evidence gets in the way.

Since before the dawn of the 20th century, embryologists have known that Haeckel misrepresented the evidence. Vertebrate embryos never pass through a similar stage. What's more, Haeckel left out the fact that the earlier stages of embryonic development between classes of vertebrates pass through remarkably different pathways to arrive at this supposedly similar intermediate stage. The fraud was recently "rediscovered," though most embryologists have been aware of the inaccuracy all along. This shows the longevity of even falsified evidence, due to its persuasive appeal even in the hallowed halls of science. Perhaps scientists are human after all, seduced by a fraud simply because it makes such a good case for a treasured theory.

## **The Peppered Moth**

Probably the granddaddy of all the icons of evolution is the peppered moth story. In pre-industrial England, the peppered moth was common in entomologists' collections. By the 1840s a dark or melanic form was increasing in frequency in populations across England. By 1900 the melanic form comprised as much as ninety percent of some populations. In the 1950s experiments by Bernard Kettlewell clearly established that this change in frequency from a peppered variety to a dark variety was due to two factors.

First, the surface of tree trunks had changed from splotchy, lichen-covered patchwork, to a uniform, dark complexion, due to increased levels of pollution. The pollution killed the lichens and covered the tree trunks with soot. Second, the peppered variety was camouflaged from predation by birds on the lichen-covered tree trunks, and the melanic variety was camouflaged on the dark tree trunk. Therefore, the switch from peppered variety to melanic variety was due to natural selection, acting through selective bird predation as the trees changed from lichen-covered bark to soot-covered bark. Then with stricter air quality standards, the lichens are

returning and the peppered variety is predictably coming back strong.

The peppered moth story became legendary as a classic example of Darwinian natural selection. But within 20 years of Kettlewell's work, cracks began to appear. It was soon noted that the characteristic switch from the peppered form to the dark form happened in areas where the lichens still grew on tree trunks. In other areas, the dark form began to decrease before the lichens began returning on trees. A similar pattern of a switch from a light form to a dark form was observed in ladybird beetles. Birds don't like ladybird beetles. Therefore, predation is ruled out as the selector. It all began to unravel when it was observed that peppered moths of both varieties **never** rest on tree trunks!

Essentially all photographs of moths on the trunks of trees were staged using dead or sluggish moths. They are not active during daylight. If that were the case, how could birds find them on tree trunks at all? Kettlewell released his moths in his mark-recapture-predation experiments in daylight hours, when the moths are naturally inactive. They simply found the nearest resting place (tree trunks in their sluggish state), and the birds gobbled up the non-camouflaged moths. We still don't know exactly where moths rest or whether lichens play any significant role in the story. Yet many biologists insist that the traditional story makes a good example of evolution in action. "To communicate the complexities would only confuse students," they say. Once again, flawed, yet cherished, examples persist because they are just too good **not** to be true!

## **Birds, Dinosaurs, Fruit Flies, and Human Evolution**

The reptile-like bird, Archaeopteryx, has long been heralded as a classic example of a true ancestral transitional form.

The improbable change from reptile to bird has been preserved in snapshot form in this remarkable fossil from Germany. Possessing a beautifully preserved reptilian skeleton with wings and feathers, Archaeopteryx was a paleontologist's dream. This would certainly explain why Archaeopteryx has found its way into just about every textbook. But Archaeopteryx has fallen on hard times. As happens with so many perceived transitions, it is universally viewed now as just an extinct bird, an early offshoot of the real ancestor.

Surprisingly, bird-like dinosaurs from much later geologic periods are hailed as the real ancestors. This is based on structural similarities despite their existence after Archaeopteryx. Never mind that the child exists before the parent. So enamored are some, that birds are just today's feathered dinosaurs. *National Geographic* was recently caught red-faced by perpetrating a fraudulent dinosaur/bird fossil as the real thing in its pages. Scientists have even accepted molecular evidence indicating an *identical* match between turkey DNA and Triceratops DNA. Never mind that the identical DNA match is more likely the result of contamination from a turkey sandwich in the lab and that Triceratops is in the wrong dinosaur family for bird evolution. Such is the power of *wanting* to believe your theory is true.

In the next four chapters, Wells visits the familiar icons of Darwin's finches, fossil horses, mutant four-winged fruit flies, and the ultimate icon, diagrams of the progressive change from ape-like creatures to full human beings. Like the others above, these icons turn out to be far less than what the textbooks suggest. In each case, as in the six discussed above, there are plenty of experts willing to expose the lack of evidence for each icon. But they remain staples in the arsenal of evidences of the evolutionary process. Fossil horses and human evolution turn out also to be indicators of the difficulty evolution has in separating philosophical preferences from conclusions drawn from the

evidence.

Textbook writers are either ignorant of current data, which prompts one to be skeptical of the accuracy of the rest of the textbook, or they are willfully misrepresenting the evidence in order to present a united front on the factualness of evolution. Unfortunately for our children, Wells is able to provide direct quotes indicating that at least some see no problem with including misleading or false data in order to make a point. After all, we know evolution is true, so just because we don't have easy simple stories to tell, doesn't mean they aren't out there waiting to be discovered.

## **The Scientific Academia Reacts**

The reasoning behind these *Icons of Evolution* exposes much of the standard story of evolutionary theory to be mythology rather than science. And if these ten icons have been viewed as the best evidence for evolution, the entire theory needs to be questioned and made accountable to the evidence. It will be interesting to watch the evolutionary community react to these revelations. Evolutionary propagandist Eugenie Scott has already reportedly predicted that the book will be a "royal pain in the fanny" for biology teachers. Will the scientific community be able to respond with an appropriate *mea culpa*, or will there be a battery of excuses and obfuscations? I predict the latter. In the last ten years, the evolutionary establishment has been exerting a great deal of effort to demonstrate that evolution is confirmed to such a degree as to be beyond rational dissent. Organizations such as the National Academy of Sciences, the National Association of Biology Teachers, and the National Center for Science Education have lobbied long and hard for the scientific integrity of the standard evolutionary story. They have held up most, if not all, of these ten icons as the principal pillars of the unassailable evidence for evolution.

Evolution is the principal foundation of the naturalistic

world view, presented by many in academia as the only scientific, and therefore, objective, view of reality. Without evolution, metaphysical naturalism cannot stand. As Richard Dawkins has said, Darwin made it possible to be an intellectually fulfilled atheist.<sup>{2}</sup> Without evolution, the naturalistic worldview is in serious trouble. Therefore, the scientific community can be expected to rally fiercely behind the evolution story. Just how they do it will prove interesting indeed. *Icons of Evolution* will help draw the evolutionary establishment out from behind the protective bulwark of its authority and force it to defend its theory on the basis of the evidence. This is a fight I believe it must eventually lose in the court of scientific and public opinion.

There are two minor, yet unfortunate, problems with the text. The first, actually a book design problem, regards the difficulty finding the legends for some figures and distinguishing them from the regular text. The second involves an unnecessarily inflammatory discussion of the monetary support evolution receives from the U.S. tax-supported National Institutes of Health and National Science Foundation. While Wells' discussion is accurate, it comes across as sour grapes and may provide a convenient target for evolutionary propagandists to dismiss the book without dealing with the evidence.

These problems aside, *Icons of Evolution* is a landmark work and deserves to be read and studied by all who have an interest in the controversy surrounding not only the teaching of evolution, but also the very theory of evolution itself.

## Notes

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

Simon Conway Morris, *Crucible of Creation*, (Oxford: Oxford University Press) 1998, p. 31.

2. Richard Dawkins, *The Blind Watchmaker*, New York, NY: W. W. Norton, 1986, p. 6.

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# The Coming Revolution in Science

## The Design Inference



True scientific revolutions that impact more than a single discipline rarely occur more than once a century. Newton's *Principia*, published in the 17th century, truly qualifies. Darwin's *Origin of Species*, published in 1859, also belongs on the list. Standing in the wings, ready to join these esteemed works and perhaps even overturn the latter, stands William Dembski's *The Design Inference*.<sup>{1}</sup> This impressive work published by the distinguished Cambridge University Press outlines the mathematical principles necessary to distinguish intelligently caused events from natural events.

Just listen to some of the comments from the dust jacket of the book from secular philosophers and mathematicians. One wrote,

“Dembski has written a sparkingly original book. Not since David Hume’s *Dialogues Concerning Natural Religion* has someone taken such a close look at the design argument.” Being put in the same sentence as David Hume is no small potatoes. Mathematician David Berlinski warns, “Those who agree with its point of view will read it with pleasure, and those who do not will ignore it at their peril.”

Dembski has rigorously detailed the key trademark of intelligent causes, what he calls *specified complexity*. The term *specified* refers to the notion that an event conforms to an independently given pattern. Complexity refers to an event of small probability. For instance, people win improbable lotteries all the time. The odds are usually in the millions to one. But when the number of tickets purchased is considered, nobody questions the legitimacy of *someone* holding the winning ticket. This would be an event of small probability without any specification. Somebody will win, but nobody can predict whom. But let’s propose that the same person wins the same lottery three times in a row! Suddenly there is an independent pattern and we immediately become suspicious that more than just chance is involved. We now have an event of extremely small probability that also conforms to a pattern or is specified. The most likely cause for such an event is that someone has intelligently tampered with the lottery.

Dembski boldly suggests that these same principles can be applied to the question of the origin of life and other evolutionary questions and still maintain the integrity of science. While Dembski has been sharply criticized by the evolutionary establishment, to their discredit, their critiques have been largely emotional and dismissive. No one has successfully challenged the heart of his thesis.

Now before you decide to run out and get a copy, please be advised that this book is not for the casual reader. Loaded with technical jargon and symbolic logic, you had better haven

eaten your mental Wheaties before tackling this one. But Dembski has written a scaled down version, which I will now discuss.

## Hasn't Science and Philosophy Ruled Out Design?

✘ William Dembski's groundbreaking book, *The Design Inference* from Cambridge University Press, is highly technical. Dembski has therefore written a follow-up book titled, *Intelligent Design: The Bridge between Science and Theology*,[\[2\]](#) which is more accessible to the general reader. *Christianity Today* has named it their 1999 Book of the Year in the "Christianity and Culture" category.

Listen to a few sound bites from comments of those recommending Dembski's *Intelligent Design*. A quantum chemistry professor from the University of Georgia says, "William Dembski is perhaps the very brightest of a new generation of scholars." A professor of philosophy from the University of Texas says, "William Dembski is the Isaac Newton of information theory." Another university professor proclaims "If Dembski is right, and I believe he is, then it is unscientific to deny the existence of God." Wow! Unscientific to deny God! Do you think that comment is rankling a good number of evolutionary biologists? Finally, another University of Texas professor of government goes further by claiming that "Dembski strengthens the case for saying that our deepest moral inclinations not only look designed, they are."

Let me now begin to satiate your curiosity by telling you a little more about this groundbreaking work. The book is divided into three parts. In the first part Dembski gives a historical backdrop to the current controversy over design. In academia, the design argument has been considered dead for over 150 years. Dembski identifies two major reasons for this demise of design. The first was the continual attack on

miracles, which culminated in the 18th and 19th century. Dembski cogently explains that their arguments don't work.

The second blow to design came from Darwin's *Origin of Species*. Darwin dismissed the prevalent British natural theology of his day by not so much refuting it, but by announcing that it simply wasn't scientific. Dembski quotes evolutionary philosopher David Hull, "He dismissed it not because it was an incorrect scientific explanation, but because it was not a proper scientific explanation at all." Darwin's faulty conception of science is still with us and Dembski sets out to refute it.

The criteria used by the British natural theologians were naive in the sense that they believed that design was self-evident. This led to far too many false positives, that is, assignments of design that were later proved to be naturalistic. The design argument was forced to retreat. In the second part of *Intelligent Design*, Dembski articulates the principles laid out in his *The Design Inference* for the general reader.

## **What Does a Theory of Design Look Like?**

Having told you about Dembski's work and the impact it is beginning to have, I will summarize Dembski's prescription or cure for the rule of naturalism in science.[{3}](#)

No one in the design movement as far as I know seeks to invoke God at every turn as an explanation for natural phenomena. So why bring God into the picture at all? For most scientists, God is only a hypothesis, and an unnecessary one at that. But beyond the ordinary operation of nature is its order. Dembski references Einstein's remark that the most incomprehensible thing about the universe is that it is comprehensible. This order must come from outside the universe or from within. But science tells us today that the only allowable answer is that it comes from within. This naturalistic philosophy has become

a form of idolatry. Nature becomes the do all and end all. As Dembski says, "Rather it is a matter of investing the world with a significance it does not deserve."[\[4\]](#)

Naturalism is pervasive in the culture. Even most Christians think and live naturalistically without realizing it. So how can naturalism be defeated? What is needed, says Dembski, is a means of detecting God's actions in the natural world. In other words there must be a reliable way to distinguish natural causes from intelligent causes. Some sciences already employ such methods such as forensic medicine, cryptography, archeology, and even the SETI program, the search for extraterrestrial intelligence. SETI depends on the ability to distinguish an intelligent message from space from the surrounding radio noise. This can be done without necessarily understanding the message or knowing the message sender.

This brings up another crucial point of intelligent design. Dembski says that intelligent design is theologically minimalist.[\[5\]](#) By this he means that intelligent design empirically detects design without speculating about the nature of the intelligence. This is crucial to answer the critics who accuse design theorists of simply wanting to bring the Bible into science. If one detects design or concludes that a particular natural phenomena contains the necessary earmarks of design, that's all that needs to be said. One can personally reflect on the nature of this intelligence, but it is not a part of the scientific test.

Dembski calls for a new generation of scholars open to pursuing intelligent causes in the universe. Here at Probe we're committed to helping find, select, and train such potential scholars to take part in a true scientific revolution.

## **Does Intelligent Design Offer a Bridge**

## between Science and Theology?

In this review and summarization of Dembski's insights let's now explore the future Dembski foresees for the dialogue between science and theology.[{6}](#)

Of course most within the scientific community see no future at all for such a discourse. Most within modern academia hold to either of three models that Dembski labels as conflicting, complementing, or compartmentalizing. Most of us are very familiar with the conflict model. Most who call themselves rationalists or secular humanists would subscribe to this view. Basically they see science as having explained all of reality and that there is no room for theology at all. I once attended a conference where a theology professor was so intimidated by this view that he said that theology was a dead discipline and would cease to exist in twenty years.

Stephen J. Gould, a Harvard paleontologist, and the National Academy of Sciences have advocated the compartmentalization view. Basically they maintain that science and theology inform different parts of reality—science the realm of facts and theology the realm of morals and faith. There is no conflict and also no dialogue between the two. It is also not hard to see that this view basically rules theology out of any important discussions about real facts. Theology inhabits only the fuzzy world of morals, which must be relative if naturalism rules in science.

Similar is the complementarity view, which essentially states that science and theology can actually inform the same reality, but their language is so foreign to the other that no meaningful discourse can take place. Both are necessary to give a complete account of reality, but you can forget about the two ever talking to each other.

In one way or another, each of these three views will eventually rule theology as irrelevant to the important

questions and a fully naturalistic science will eventually be the wellspring for all useful information and discourse. But as you might expect, Dembski offers a fourth view and argues that it is the only proper view of the two disciplines.

Dembski compares science and theology to two different windows that view the same reality. Since the windows are different, they gain a different perspective. But since they are viewing the same reality, what is seen from each window can in many cases be meaningfully related. Both science and theology may on occasion, be capable of further explaining observations from each window. He offers the current discussion concerning the cosmology's Big Bang and theology's act of Creation as an example. If the Big Bang is true, then Christianity's theology of creation *ex nihilo* is a better explanation than naturalism's attempt to explain something from nothing.

There is much more work to be done here as Dembski readily admits, but the tone and direction is very refreshing.

## **What Are the Standard Objections to Design in Science?**

There is the potential of the intelligent design movement bringing about a revolution in science. I have summarized the work of William Dembski, a double Ph.D. in philosophy and mathematics with a Master's of Divinity thrown in for good measure. In the appendix of his much acclaimed book, *Intelligent Design: The Bridge between Science and Theology*, Dembski investigates several of the more common objections to intelligent design. To conclude this review I will examine one of these objections.

Dembski states the first objection this way, "Design substitutes extraordinary explanations where ordinary explanations will do and thereby commits a god-of-the-gaps fallacy." Those believing that God used evolution as His means of creation usually voice this objection. This view is

motivated by the tremendous history of naturalistic science in explaining very difficult natural phenomena by natural means. This often occurs after someone has claimed that God was necessary to explain a particular observation. Isaac Newton thought divine intervention was necessary to explain the irregularities of planetary orbits. It was eventually shown that these irregularities were periodic and not random and thus explainable by natural law.[{7}](#)

Newton was widely criticized for this view, and many Christians fear that appealing to design now will end up in ridicule later when natural processes may also explain contrivances of intelligent design later. While this fear is understandable in the light of history, there are considerable differences. Design does not claim to simply explain what we do not understand. Rather, intelligent design is attempting to demonstrate a real solution to problems based on what we know about design, not what we don't know about natural explanations.

Besides, if we believe that the laws of nature are incapable of producing certain natural phenomena, such as the genetic code of DNA, just how long are we supposed to keep looking for a naturalistic solution instead of looking elsewhere? This puts shackles on scientific inquiry and stifles new ideas. Certainly we should attempt to exhaust all known naturalistic possibilities before pursuing a design answer. But fear of failure should not be our deterrent. There is always risk in proposing new scientific ideas and hypotheses. The risk is that you just might be wrong. But this has never permanently hindered the proposal of a new idea. Failure should be a constant risk in science. Otherwise nothing new will ever be discovered.

“Not all gaps are created equal. To assume that they are is to presuppose the very thing that is in question, namely, naturalism.”[{8}](#) William Dembski has issued a strong challenge through his books and more are to follow from others dealing

with the philosophy and science of intelligent design. The next several years should be very exciting indeed.

## Notes

1. William A. Dembski, *The Design Inference: Eliminating Chance by through Small Probabilities* (Cambridge, England: Cambridge University Press, 1998).
2. William A. Dembski, *Intelligent Design: The Bridge between Science and Theology* (Downers Grove, IL: InterVarsity Press, 1999).
3. Ibid., 97- 121.
4. Ibid., 101.
5. Ibid., 107.
6. Ibid., 187- 210.
7. Nancy Pearcey and Charles Thaxton, *The Soul of Science: Christian Faith and Natural Philosophy*, (Wheaton, IL: Crossway Books, 1994), 91-92.
8. Dembski, *Intelligent Design*, 245.

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# Darwinism Takes a Step Back

# in Kansas

## Has Oz Returned to Kansas?

Suddenly, the mere mention of the Kansas State Board of Education in most educational and academic circles brings derisive giggles and sneers. In August the Kansas State Board of Education voted to remove references to macroevolution from state science testing standards. A wave of revulsion gripped the nation's media. In *Time* magazine, Harvard University paleontologist Stephen J. Gould trumpeted, "The board transported its jurisdiction to a never-never land where a Dorothy of the new millennium might exclaim, 'they still call it Kansas, but I don't think we're in the real world anymore.'" [\[1\]](#) Gould further belittles honest concerns about the teaching of evolution by proclaiming: (1) no other nation has endured any similar movement (this makes us look bad overseas); (2) evolution is as well documented as any phenomenon in science (it is perverse to call evolution anything but a fact); and (3) no discovery of science can lead us to ethical conclusions (believe what religion you want, science doesn't threaten you).

That's a pretty scathing reaction. Let's see what else we can find.

Here's one from nationally syndicated columnist Ellen Goodman of the *Boston Globe*. [\[2\]](#) Ms. Goodman declared that "removing evolution from the science curriculum is a bit like removing verbs from the English curriculum. Evolution can still be taught, but it's no longer required, it won't be tested, and it will be discouraged." (However, natural selection, variation, and microevolution will still be recommended and tested.) Later she decries the fact that "In 1925, creationists dragged a young biology teacher, John Scopes, to the courtroom for the infamous 'Monkey Trial.'" Actually it

was the ACLU that dragged Scopes into the courtroom. He couldn't even remember if he had actually taught evolution. They needed a "volunteer" to defend to test the new Tennessee law. (See Phillip Johnson's *Defeating Darwinism By Opening Minds*, 1997, IVP, Chapter 2 for the real story of the Scopes trial and its shameful portrayal in the play and film, *Inherit the Wind*.) Goodman also pontificates that "there is no serious scientific dispute about the fact of evolution." Notice that Ms. Goodman indicates that evolution is a fact, therefore beyond question. She also cleverly indicates that if you dispute evolution, you must not be a serious scientist.

In the *Seattle Post-Intelligencer*, Sean Gonsalves laments, "Educated people everywhere are still in shock over the appalling ignorance displayed by the Kansas state board of education that voted two weeks ago to effectively remove evolution and the 'Big Bang' theory from the state's science curriculum. Is there still a science curriculum in Kansas?" [\[3\]](#)

Well, those unruly, ignorant anti-evolutionists really seem to have overstepped their bounds this time! You would think that we would be cowering in the corner somewhere after all the abuse from such heavy hitters, but no, actually, we're quite ecstatic. I have given you only a small example of the media and science firestorm, but it is just more of the same. While nobody enjoys being the butt of jokes and verbal abuse, what is significant are two things. First, the Kansas board has dealt Darwinists a severe blow by not mandating creation, thereby eliminating Darwinist's usual rallying cry of science versus religion. They have simply searched for a more objective means of presenting evolution. That's tough to argue against. Second, Darwinists have been flushed out into the open. Flimsy, *ad hominem* attacks, appeals to authority, and question begging have been brought out in the open for all to see. The Kansas State Board of Education has unintentionally raised the stakes in the decades old creation/evolution discussion.

## What Really Happened in Kansas?

Given the reaction to the decision by the Kansas State Board of Education you would have thought the six board members who voted for the new standards in a close 6-4 vote were part of some dastardly plan to underhandedly bring God into the classroom. Also seemingly at stake was the reputation of the whole state of Kansas if its citizenry did not rise up in revolt against such an irrational decision. Apparently, Kansas had been set back decades in science literacy.

Well, what actually happened in Kansas? What did the board actually do and why? It is important to realize that the Kansas board authorized a 27-member panel of scientists and science educators from the state to revise the current state science testing standards. These standards do not mandate what can and cannot be taught, only what likely will be included on state science tests. What the board received was a highly prejudicial document making evolution the single unifying concept to the state's biology standards. When board chairwoman Linda Holloway asked the committee representatives for evidence of macroevolution they essentially replied, "We're the experts, and that will have to do."<sup>{4}</sup> What that means is that she received no evidence, just an admonition that, with their position as scientists, she should just trust them.

Rather than turn the Kansas high school classrooms into a propaganda machine for materialist philosophy, the board decided to amend the standards to maintain microevolution—natural selection acting on genetic variation—but not macroevolution<sup>3</sup>/<sub>4</sub>the claim that microevolution leads to new complex adaptations and new genetic information. They also left it up to the individual school districts to determine how much or how little evolution to teach. Evolution was *not* removed from the curriculum, as so many news stories reported. Creation was not mandated, Darwin was not banned,

and evolution was not censored.

What this *does* do is leave open to school districts the opportunity to teach the surging controversy surrounding evolution. Actually, what many in the intelligent design movement would have preferred, if possible, is to teach more evolution, not less. Meaning, let's teach not only the evidence for evolution, but also the mounting evidence calling the naturalistic creation story into question. Students should be familiar with evolution. It is the major story of origins within the scientific community. But in the interest of a true liberal education, the serious questions regarding evolution should also be included. Students should be allowed the privilege of weighing the evidence for themselves, not just accepting it because their teacher tells them to.

This is really where the threat to the scientific community lies. The more doubt about evolution that's allowed, the trickier the educational landscape becomes for a fully naturalistic, materialistic approach to education.

In the past, the media barrage over such an anti-evolutionary decision has been decidedly one-sided. What is significant this time is that the Kansas board has received some rather hefty and significant support from invited articles, guest columnists, and op-ed pieces in prestigious news outlets such as the *Wall Street Journal*, the *Washington Post*, the *Chicago Tribune*, and the *Washington Times*. The debate is indeed changing.

## **Some Surprising Support for Kansas Board of Education**

Amidst the unusual rancor and indignation from the media and scientific community following the decision of the Kansas State Board of Education, many have missed the small, yet significant, support the board has received for the spirit of their decision: namely, to try to find a way to disrupt the

universal agenda to present scientific naturalism as the only possible explanation of where we all came from.

On August 16, 1999, the *Wall Street Journal* published an article by UC Berkeley law professor and Darwinian critic, Phillip Johnson.<sup>{5}</sup> Johnson quotes a Chinese paleontologist who openly criticizes Darwinism as wryly commenting that “In China we can criticize Darwin but not the government. In America you can criticize the government but not Darwin.” After summarizing the frantic response of scientists and educators, Johnson commented, “Obviously, the cognitive elites are worried about something a lot more important to themselves than the career prospects of Kansas high school graduates.”

Johnson pointed out that evolution is the main scientific prop for scientific naturalism, a philosophical system that leaves God totally out of its picture of reality. Quoting well-known scientists such as Carl Sagan, Richard Dawkins, Stephen J. Gould, and Richard Lewontin, Johnson makes clear that this is the real battle. Allowing evolution’s flaws to be detailed in classrooms would allow a broader discussion of fundamental assumptions. Johnson concluded optimistically, “Take evolution away from the worldview promoters and return it to real scientific investigators, and a chronic social conflict will become a chronic intellectual adventure.”

A few days later, the *Washington Times*<sup>{6}</sup> chided the rest of its media cohorts for a vast overreaction and actually cited evidence that calls Darwinism into question. The friendly editorial concluded with “No one, and certainly not the Kansas Board of Education, is saying that evolution should not be taught; it remains the prevailing scientific theory of creation. Rather, some healthy agnosticism and scientific open-mindedness on the matter would seem to be in the best interest of everyone curious about the greatest mystery of all.” Hear, hear!

The *Chicago Tribune*, while openly critical of the action of

the Kansas Board of Education, also criticized previous actions of the National Association of Biology Teachers concerning evolution.[\[7\]](#) The association initially used the words *unsupervised* and *impersonal* to describe the evolutionary process. These clearly non-scientific terms were eventually and reluctantly removed by the association, who explained they didn't think the terms would be construed negatively, which the *Tribune* called either a lie or clear demonstration of scientific fundamentalism.

Finally, the *Washington Post*[\[8\]](#) printed an article by Jay Richards, senior fellow and program director of the Discovery Institute's Center for the Renewal of Science and Culture. The CRSC is currently the only think tank I know of that openly supports and endorses intelligent design. Richard's final point, "Fairness and objectivity in the science classroom require that teachers teach the controversy, not deny its existence," is fair, lucid, rational, and appealing. "Teach the controversy" has become a rallying cry. You are bound to hear it more and more. The debate in Kansas has resulted in similar debates around the country, to which we now turn our attention.

## **Darwinism Assailed in Other States**

Following the recent decision by the Kansas State Board of Education the teaching of evolution was big news around the country. In Kansas there were roundtable discussions, lectures, and debates. Some were in academic settings, such as the University of Kansas and Washburn University, some were in churches, and some were sponsored by a humanist skeptic organization. The American Association for the Advancement of Science (AAAS) was prompted to publish their own statement deploring the action taken by the Kansas Board of Education.[\[9\]](#)

You might think that all the negative publicity would cause other states to back off any changes in their own science

curriculum. But apparently, all this publicity has encouraged other school boards to chart their own course or adopt the methods of other states before them.

The Oklahoma State Textbook Committee voted to adopt a disclaimer to be placed on the inside cover of all biology textbooks. Unhappy with the propaganda-like treatment of evolution in the majority of textbooks they looked at, the committee needed the disclaimer to be able to recommend a sufficient diversity of biology texts for the state. While arguably not the best statement on the subject, the disclaimer labels evolution as controversial, a separation of microevolution and macroevolution, and encourages students to study hard, keep an open mind, and perhaps they can contribute to the origins discussion in the future. Nothing is said about creationism, intelligent design, or any other theories. Basically the statement wants students to think critically about evolution.

What has been missed in the newly swirling controversy about the disclaimer in Oklahoma is that it is nearly a direct copy of the disclaimer adopted by Alabama over two years ago which has not been challenged in court. However, instead of mentioning the obvious connection, journalists attempted to draw parallels to a Louisiana school district directive that was recently struck down because it specifically mentioned creationism. The two disclaimers are not related, but in the attempt to make it look as bad as possible, the chosen tactic is to mislead.[{10}](#) Once again, a very reasonable, but not perfect resolution was dismissed as simply another attempt to smuggle creationism into the public schools.

Meanwhile in West Virginia a similar controversy hit the news. The Kanawha County Board of Education is considering a resolution that would allow for the teaching of theories for and against the theory of evolution. It soon came to light that Illinois and Kentucky had previously passed resolutions similar to the one in Kansas. Commentary and editorials were

appearing in major and local newspapers across the country taking sides in a suddenly public and heated discussion. Clearly, something has changed. The usual evolutionist hand-wringing is sounding more like whining and the previously unheard-of support for a revision of the instruction in evolution is suddenly receiving a cautious but receptive ear in important academic, educational, and media circles. While it must be kept in mind that all of these “victories” are relatively small and can be easily overturned, nonetheless their simplicity, objectivity, and legal savvy are raising eyebrows that paid little attention before.

## **What Does All This Mean?**

The flurry of nationwide activity concerning the teaching of evolution in our public school systems, while noteworthy, is not terribly new. This battle has been going on for over three decades, but with seemingly little change. However, this time, as I have documented, there has been surprising support and very public discussion over the last few months. Phillip Johnson and others have been invited or allowed to offer their impressions and rebuttals in newspapers, journals, and magazines across the country. Public lectures, debates, and roundtable discussions have been offered before large crowds.

Something has definitely changed. I think we can isolate the change in two places. First some of the cherished, misleading evolutionary explanations are being rebutted openly and decisively in these public discussions. Second, the public is becoming better educated on the issues involved and they are less intimidated by the evolutionary rhetoric.

One of the favorite lines used to dismiss critics of evolution is to label them as religious zealots and fundamentalists. Religion and science, says this argument, have nothing to say to one another so you can't bring religion into the science classroom. Stephen Gould states the case in his usual journalistic style, “Science and religion should be equal,

mutually respecting partners, each the master of its own domain, and with each domain vital to human life in a different way.”{11} Elsewhere it becomes plain that Gould means that science deals in facts and religion in the intangibles of morality and such. This is seen more and more as condescending nonsense. Other evolutionists like Douglas Futuyma readily admit that, “By coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or spiritual explanations of life processes superfluous.”{12} The negation of a theological principle is itself, a theological principle. Besides, any theory which purports to explain where we came from will contain the seeds of ethics and morality.

Robert E. Hemenway, chancellor of the University of Kansas, tried to say that the Kansas decision is a rejection of science altogether.{13} But when you actually read what the Board of Education did, they actually expanded the coverage of evolution from the previous standards and required students to know a very decent description of Darwinian evolution.{14} Skepticism is healthy in science. The new standards actually promoted questioning and critical thinking. This kind of obfuscation was not so easily foisted on the public.

The educational effort of many organizations over the past several decades has begun to yield citizens surer of themselves and not so easily intimidated. Seeing articles appearing in major news outlets like the *Wall Street Journal*, the *Washington Times*, and the *Chicago Tribune*, as well as appearances on CNN, have galvanized popular opinion and provided means to critically counterattack the bluster of the opposition.

Although the coverage has not always been accurate and completely positive, and the actual decisions by education boards have not always hit the mark, the net effect has been a major opening up of the debate. Change has been accomplished in these few months that would have ordinarily taken years. As

mentioned previously, the phrase “teach the controversy” will be found more and more in the public discussion. That’s exactly what needs to happen.

## Notes

1. Stephen Jay Gould, “Dorothy, It’s Really Oz, 1999,” *Time* vol. 154, no.8 (August 23, 1999), 59.
2. Ellen Goodman, “Those Ever-Evolving Creationists,” *Boston Globe*, Aug. 19, 1999, A19.
3. Sean Gonsalves, “Kansas School Board Fighting the Wrong Theory,” *Seattle Post-Intelligencer*, August 24, 1999, A11.
4. Jeremy Johnson, “Media Pigeonholes Board into Stereotype,” *Kansan*, August 19, 1999.
5. Phillip E. Johnson, “The Church of Darwin,” *Wall Street Journal*, August 16, 1999, A14.
6. “Editorial, Kansas Conundrum,” *Washington Times*, August 19, 1999, A16.
7. Steve Kloehn, “In a Word, Kansas Tries to Make Evolution Go Away,” *Chicago Tribune*, August 20, 1999, 10.
8. Jay Richards, “Darwinism and Design,” *Washington Post*, August 21, 1999, A19.
9. “AAAS Statement on the Kansas State Board of Education Decision on the Education of Students in the Science of Evolution and Cosmology,” *Science*, vol. 286 (November 12, 1999), 1297.
10. Diane Plumberg, “Panel Plunges State into Debate about Evolution,” *Daily Oklahoman*, November 12, 1999.
11. Gould, 59.

12. Douglas J. Futuyma, *Evolutionary Biology*, 3rd ed. (Sunderland MA: Sinauer Assoc., 1998), 5.

13. Robert E. Hemenway, "The Evolution of a Controversy in Kansas Shows Why Scientists Must Defend the Search for Truth," *Chronicle of Higher Education*, October 29, 1999, B7.

14. Jonathan Wells, "Ridiculing Kansas School Board Easy, But It's Not Good Journalism," *Mitchell (South Dakota) Daily Republic*, October 14, 1999.

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## **Mere Creation: Science, Faith and Intelligent Design**

An unprecedented intellectual event occurred in Los Angeles on November 14-17, 1996. Under sponsorship of Christian Leadership Ministries, Biola University hosted a major research conference bringing together scientists and scholars who reject naturalism as an adequate framework for doing science and who seek a common vision of creation united under the rubric of intelligent design. The two hundred participants, primarily academics, formed a nonhomogeneous group. Most had never met each other. Yet virtually all the participants questioned the reigning paradigm of biology—namely, that natural selection and mutation can account for the origin and diversity of all living things.[\[1\]](#)

So said Dr. Henry F. Schaefer III, professor of chemistry at the University of Georgia, author of over 750 scientific publications, director of over fifty successful doctoral students, and five-time Nobel nominee, in his foreword to the

1998 book, *Mere Creation: Science, Faith and Intelligent Design*.<sup>{2}</sup> I was privileged to be one of the two hundred participants at this historic conference which, along with the subsequent book, form the backbone of future direction of the fledgling intelligent design movement.

I would like to highlight significant chapters from this book and provide additional resources to learn more about this important challenge to Darwinism. Along the way I hope you will gain a glimpse of how important this movement is to the future not just of biology, but of science education as a whole in this country and around the world.

Jonathan Wells is a post-doctoral research biologist in the department of molecular and cell biology at the University of California at Berkeley. His Ph.D. is from the same institution in developmental biology. In his chapter, "Unseating Naturalism,"<sup>{3}</sup> Wells lists several important insights from developmental biology that seriously challenge a purely naturalistic biologic science.

Since 1983, homeotic genes have been the rage in evolutionary developmental biology. First discovered in fruit flies, these genes appear to act as switches to turn on a series of genes important for sequential levels of development. Of interest to evolutionists, is the fact that many of the same genes found in fruit flies are also found in almost every other animal group, all acting as developmental switches. They are even frequently found on the same chromosome and in the same order from species to species. Such evidence seems quite a compelling argument for all life forms evolving from a common ancestor.

But Wells quickly points out that these genes do not control the same body structures from species to species, so an evolutionary explanation does not fit so well. "If the same gene can 'determine' structures as radically different as a fruit fly's leg and a mouse's brain or an insect's eyes and

the eyes of humans and squids, then that gene is not determining much of anything.”{4} There is no current mechanism to understand how a homeotic-switching gene can change from coding for one function to another in different organisms. Suddenly, this new great evidence of evolution is yet another problem for evolutionary biology. Wells goes on to point out that intelligent design has no trouble incorporating similar switches in different organisms just as an engineer understands the use of similar ignition switches in different kinds of vehicles.

Wells concludes that, “A design paradigm can nurture the sort of formal and teleological thinking that will enable biologists to discover the laws of development that have so far eluded them.”{5} The reason for the elusion is the shackles of Darwinism.

## Redesigning Science

In taking a close look at the book, *Mere Creation*, edited by Bill Dembski, I would like to explore Dembski’s own contribution to the volume, “Redesigning Science.”{6} If the name Bill Dembski is unfamiliar to you, it won’t be for long. Dembski is an extremely bright and articulate young man with earned doctorates in mathematics from the University of Chicago and philosophy from the University of Illinois at Chicago along with an M. Div. from Princeton Theological Seminary. Dembski is also the author of perhaps the most significant book to date in the intelligent design movement, *The Design Inference: Eliminating Chance through Small Probabilities*{7}, from the prestigious Cambridge University Press.

Bill is also confident. He is confident that intelligent design can thoroughly reshape the horizons of science in the next twenty years. He begins his chapter with a whimsical scenario recounting a “nightmare” potentially experienced by Harvard paleontologist and vocal anti-creationist, Stephen Jay

Gould. The nightmare includes Gould no longer teaching at Harvard, relegated to leading field trips to the Galapagos Islands and the Burgess Shale in the Rocky Mountains of Canada, with Phil Johnson and cronies firmly in control of the National Science Foundation.[\[8\]](#) While Dembski admits that the nightmare is hopefully not realized in all its details, the notion of design claiming primacy within science is clearly the objective.

In order for this objective to be realized, design must be specifically and rigorously defined. I'll allow Dembski to explain in his own words.

*The key step is to delineate a method for detecting design. Such a method exists. We use it implicitly all the time. . . . The method takes the form of a three-stage explanatory filter. Given something we think might be designed, we submit it to the filter. If it successfully passes all three stages of the filter, then we are warranted asserting it is designed. Roughly speaking, the filter asks three questions, and in the following order: Does a law explain it? Does Chance explain it? Does design explain it?[\[9\]](#)*

In trying to classify an event as either due to natural law, chance, or design, we first try to assess if it is an event of high probability and therefore due to some recognizable natural law. A bullet firing when a gun's trigger is pulled or getting at least one head when a fair coin is tossed a hundred times are both high probability events due to natural law.

Rolling snake eyes with a pair of fair dice, or even winning a million dollar lottery when considering how many tickets are sold, constitute events of intermediate probability that are justly relegated to chance.

But let's say the same person wins that lottery three times in a row or even twice in a row. Suddenly we suspect that something more than chance is involved. Dembski's own example

is Nicholas Caputo, the county clerk of Essex County, New Jersey. Caputo was responsible for determining the order in which candidates appeared on the ballots for elections. Caputo was a Democrat and 40 out of 41 times the Democrats were listed first, which everyone agrees, gave them a slight advantage. We intuitively use the explanatory filter to classify these events as designed because they are of small probability and they conform to a pattern. Thus intelligent design combines small probability with what Dembski terms, "specified complexity."

Dembski and the other authors of *Mere Creation* believe we can apply the same test scientifically to physical, chemical, and biological events.

## **The Explanatory Power of Design**

One of the critical questions for intelligent design is its ability to explain at least some natural phenomena more completely than naturalistic science. Stephen Meyer addresses this problem in his chapter, "The Explanatory Power of Design."[\[10\]](#) Steve Meyer is professor of philosophy at Whitworth College in Spokane, Washington, with a Ph.D. in the history of and philosophy of science from Cambridge University, England. As an example of design's explanatory power, Meyer chooses to explore the origin of information within living systems, specifically the origin of the genetic code. Meyer brings a scholarly appraisal to the subject since his Ph.D. dissertation concerned the history and status of origin of life research.

Meyer summarizes the extreme problems origin of life research has encountered in the last thirty years, highlighting along the way the important work by Charles Thaxton and Walter Bradley.[\[11\]](#) Following the euphoria of the famous experiment by Miller and Urey in 1953, the origin of life community has suffered setback after setback. Miller and Urey demonstrated that a mixture of methane, ammonia, water and hydrogen could

be induced to produce, among many other organic compounds, a few amino acids, the building blocks of proteins. Subsequent work showed that this hypothetical atmosphere was pure mythology. So was the notion of a prebiotic soup of biochemical building blocks. [{12}](#)

Beyond the purely biochemical difficulties of origin of life research looms the immense problem of accounting for the origin of complex specified information contained in biomolecules, and specifically in DNA and the genetic code. In the computer age we are often amazed at the speed and storage capacity of modern personal computers, particularly the laptop variety with their 12 gig hard drives and 500 MHz speeds. We seldom realize, however, that “the information storage density of DNA, thanks largely to nucleosome spooling, is several trillion times that of the most advanced computer chips.” [{13}](#) So not only is there real information stored in DNA, but it is stored at a density on a molecular level, we can't even approach with our best computers. So just where did this information come from?

Attempts to account for the origin of biological information by natural biochemical means have utterly failed. The odds of achieving even a small 100 amino acid protein are less than 1 in  $10^{125}$ . Events of that small a probability just don't happen. Not only that, but researchers now realize that natural forces are incapable of achieving the formation of bio-information by any process. At first, some thought that maybe the amino acids and nucleotides had some natural affinity for each other to help account for the specific sequences of proteins and DNA. When that turned into a dead end, some hoped that some sort of natural selection of molecules might help. But natural selection requires reproducing cells. So-called “self-organization” processes only provide low level order, like ripples in the sand, not informational messages like “JOHN LOVES MARY” written in the sand.

Scientific laws will only describe ordered natural phenomena, like the structure of a crystal, which bear no relationship to the specified complexity within biomolecules. Instead, our experience with informational codes and languages indicates that they always come from an intelligent source. Therefore mind or intelligence stands as the only possible source for the information in DNA, proteins and cells as a whole.[{14}](#)

## **Applying Design within Biology**

Have you ever wondered how a baby is formed from a single cell in just nine months? You could ask the same question of just about any animal from wasps to caterpillars to frogs to clams. A fully functioning organism is a symphony of integrated parts performing in coordinated fashion to make beautiful music. But where did all the orchestra members (or proteins) come from? And who told them where to sit? And how do they know when and what to play? And what about tempo and volume and on and on? Well, you get the picture. Biological organisms are immensely complex, but they all start out as single cells. Somehow they turn into assemblages of different cells and tissues that all know their places and roles. Embryological development has long been a mystery and its secrets are only slowly being revealed. It has also turned into a potentially fruitful battleground between evolution and intelligent design.

Paul Nelson recently received his Ph.D. in philosophy from the University of Chicago and is currently doing post-doctoral work at the same university in evolutionary and developmental biology. The connection between embryological development and evolution is significant because, in order for organisms as diverse as hawks and starfish to evolve from a common ancestor, they must change not only their outward appearance but also the developmental process that starts as single cells for both. Nelson's "Applying Design within Biology" explores the connection and its inherent contradictions.[{15}](#)

A major observation of embryology has been that developmental

mutations are usually harmful and often fatal. And the earlier in the developmental process the mutation occurs, the more likely the effect will be harmful. This led most embryologists to believe that evolutionary changes utilize mutations that appear relatively late in embryological development. Subsequently Darwinists predicted that the further back you go in comparing two organisms' patterns of development, the more similar they will be. Unfortunately for evolution, this is not true. There is wide diversity of early cleavage patterns of cells in embryos from species that can actually be closely related. One author went so far as to refer to this as "intellectually disturbing." [\[16\]](#)

Such a dramatic reversal would, you would think, cause many or at least some developmental biologists to question the validity of Darwinism. But as I have indicated so many other times in other essays, Darwinism is assumed, not questioned. Biologists mainly concluded that change in early development is doable after all and quite common. But as Nelson aptly summarizes, "There is little if any experimental evidence that 'changes in early development are possible.'" [\[17\]](#)

While the diversity of pathways to similar ends in development is a problem for evolutionary developmental biology, it is an expectation of intelligent design. The sheer magnitude of instructions for embryological progress screams for a design perspective. Design is also found in the newly discovered redundancy of developmental pathways. Knocking out a seemingly essential gene can sometimes have no effect whatsoever. Built-in redundancy is a hallmark of *design*, not chance mutations and natural selection. Nelson basically believes that any element of an organism necessary for survival and reproduction in any environment is a strong candidate for design. This should help open up new research avenues for developmental biology which is exactly what new theories should do.

## Basic Types of Life

Next time you are walking through a zoo, stop and think about what makes some animals different and others similar. For instance, if you are looking out over a large pond, you may see different species of ducks, geese, and swans. While they do appear different in some respects, there are also very tantalizing similarities. However, if there are also some flamingos or sea gulls in the crowd of aquatic birds, you would not put them in the same category as ducks and geese. They seem different. Evolutionists, of course, would see sufficient similarities: they are birds, after all, with wings, feathers, and beaks. So evolutionists would say they all evolved from a common ancestor. Ducks and geese are more similar to each other than they are to flamingos so the ancestor of ducks and geese is more recent than the ancestor of ducks, geese, and flamingos.

But since intelligent design is calling into question many evidences and predictions of naturalistic evolution, it is reasonable to assume that all animals are not related back in time through a common ancestor. Perhaps all birds did not evolve from a single source. Maybe there are many different ancestors for the many groups of birds and other animals. Well, how would you know? How could you recognize groups of animals that do derive from a common ancestor and those that have arisen independently? Siegfried Scherer makes an attempt in his chapter titled, "Basic Types of Life." [\[18\]](#)

Dr. Scherer is a professor of microbial ecology and director of the Institute of Microbiology at the Technical University of Munich and has published numerous papers in international peer-reviewed journals. Scherer proposes that there is another unit of taxonomic classification that can be overlaid on current taxonomy, the idea of basic types. [\[19\]](#) A basic type is a group of organisms or species that are capable of hybridizing. These hybrids don't necessarily have to be

fertile themselves. Simply producing a coherent functioning organism from sperm and eggs of different species is sufficient.[{20}](#) Numerous successful attempts to hybridize different species of ducks, swans, and geese have convinced Scherer that they belong to a single basic type. This would mean that all 148 species are descended from a single common ancestor.[{21}](#)

The distinct differences mentioned earlier, between ducks and flamingos, would result from them being of different basic types. This observation leads Scherer to suggest that microevolution can now be defined as evolution within one basic type and macroevolution as evolution between basic types. The current evidence suggests that macroevolution is an undocumented process both from the fossil record and the biology of basic types.

The plethora of species within a basic type like the ducks and geese also suggests that there was a great deal of variation built into each basic type to allow many distinct species to form through speciation. This prediction would be consistent with intelligent design but not evolution. There would be no reason for evolution to suggest that some species would have more variation than others would. This is corroborated by the observation that hybrids between two species frequently resemble a third species. This indicates that the genetic combination of the third species was hidden between the two species used to form the hybrid.[{22}](#)

Scherer summarizes that evidence of individual ancestors for each basic type, fossil and biological gaps between basic types, similar or convergent characters in different basic types, and odd features, such as slightly differing genetic codes now found in a few organisms would also be evidence of design over evolution. The possibilities for further research are everywhere. Intelligent design becomes an extremely fruitful paradigm for research.

## Notes

1. Henry F. Schaefer III, "Foreword," in *Mere Creation: Science, Faith and Intelligent Design*, William A. Dembski, Ed. (Downers Grove, Ill.: InterVarsity Press, 1998), 9.
2. Ibid., 475.
3. Ibid.,, 51-70.
4. Ibid., 56.
5. Ibid., 68.
6. Ibid., 93-112.
7. William A. Dembski, *The Design Inference: Eliminating Chance through Small Probabilities* (Cambridge: Cambridge University Press, 1998), 243.
8. Dembski, *Mere Creation*, 93.
9. Ibid., 94.
10. Ibid., p. 113-147.
11. Charles Thaxton, Walter Bradley and Roger Olsen, *The Mystery of Life's Origin: Reassessing Current Theories* (Dallas: Lewis and Stanley, 1984), 228.
12. *Mere Creation*, 118-119.
13. Ibid., 120.
14. Ibid., 136-137.
15. *Mere Creation*, 148-174.
16. Eric Davidson, quoted in *Mere Creation*, 155.
17. Ibid.

18. Ibid., 195-211.

19. Scherer does at least mention a competing idea, baramin, initially proposed by creationist Frank Marsh (*Fundamental Biology*, 1940, Lincoln Neb., n.p., *Variation and Fixity in Nature*, Mountain View, Calif.: Pacific Press) and further explicated by Kurt Wise (K. Wise, Baraminology: "A Young Earth Creation Biosystematic Method, in *Proceedings of the Second International Conference on Creationism*, R.E. Walsh and C.L. Brooks, eds. (Creation Science Fellowship, Pittsburgh, PA, 1990, Vol. 2, 345-360 and K. Wise, "Practical Baraminology," *Creation Ex Nihilo Technical Journal*, 1991, 6(2): 122-137). Scherer chooses not to mention another attempt in fleshing out this concept, the prototype, proposed by Lane P. Lester and Raymond G. Bohlin in *The Natural Limits to Biological Change* (Dallas: Probe Books, 1984), 161-172.

20. *Mere Creation*, 197-199.

21. Ibid., 200.

22. Ibid., 203-204.

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## **Why Does the University Fear Phillip Johnson?**

## Who Is Phillip Johnson?

Best-selling author Phillip Johnson has become the leader of the Intelligent Design movement. His books *Darwin on Trial*, *Reason in the Balance*, *Defeating Darwinism by Opening Minds* and the recently released *Objections Sustained* have become rallying points for Christian scholars across the academic spectrum. Johnson has addressed university audiences around the country, sometimes on his own, often in debate with a leading proponent of evolution. He has even addressed in private session entire science, law, and philosophy departments at top universities. Well, just who is Phillip Johnson and how does he rate such attention?

Johnson was raised in a nominally Christian family, but he grew to become a convinced skeptic of the faith. This process was greatly aided by his education, first as an undergraduate at Harvard and then at the University of Chicago Law School where he graduated first in his class. Johnson became convinced that people were basically good, education would solve whatever problems you had, the stuff of Sunday school was okay but mythology, and he could achieve success by thinking for himself and absorbing the culture around him.

This is the enticing picture the academic community paints for students and Johnson bought it. But things began to unravel in his mid-thirties. He had achieved his goals. He served as law clerk for Supreme Court Chief Justice Earl Warren and held a distinguished professorship of law at UC Berkeley, but he lacked fulfillment. He was publishing papers nobody read, or ought to read. His marriage to a beauty queen fell apart and he was single parenting for awhile. The writings of C. S. Lewis had impacted him greatly, but he thought, "Too bad we can't believe in that anymore." Eventually he heard the gospel preached in a way that seemed plausible and attractive. Johnson envied the speaker's combination of commitment and fulfillment. "Do I have something so wonderful?" he

questioned. Johnson said, "They believed it, I could too."

Johnson put his faith in Christ, but faced a dilemma. If the gospel is true, why are all the "intelligent" people agnostic? He prayed for insight. Beginning with a sabbatical at University College in London in 1987-88, Johnson embarked on an intellectual journey. This journey has developed into a project that has seen him publish four books, deliver hundreds of lectures on college campuses, and become the leader of the fledgling Intelligent Design movement over the last ten years. Primarily through his study of evolution, Johnson learned that the academic community's primary intellectual commitment is to the philosophy of naturalism. If the "facts" contradict materialistic conclusions, then the "facts" are either explained away, ignored, or just plain wrong.

Therefore, evolutionists like Richard Dawkins can say things like "Biology is the study of complicated things that give the appearance of having been designed for a purpose," and actually say it with a straight face. The appearance of design is an illusion, you see, because we "know" that organisms evolved and the primary reason we "know" this is because naturalistic philosophy demands it.

Johnson's primary task seems to be continually provoking the scientific community into facing the reality of its naturalistic presuppositions. In earlier years, the scientific establishment was able to dismiss creationists and not officially respond. But when a tenured law professor from Berkeley starts messing with your head, people start answering back. The National Academy of Sciences has issued two publications in the last two years trying to stem the tide.[\[1\]](#) The cracks in Darwinian evolution are beginning to show.

## **What Could a Law Professor Say About**

# Evolution?

What could a legal scholar possibly have to say about evolution? Many in the academic community have raised the same question as Phillip Johnson has visited their university. In his own words Johnson states: "I approach the creation-evolution dispute not as a scientist but as a professor of law, which means among other things that I know something about the ways that words are used in arguments." {2}

Specifically what Johnson noticed was that both the rules of debate about the issue as well as the word *evolution* itself were defined in such a way as to rule out objections from the start. Science is only about discovering naturalistic causes of phenomena, therefore arguing against the sufficiency of natural causes is not science! Also the "fact of evolution" is determined not by the usual definition of fact such as collected data or something like space travel which has been done, but as something arrived by majority vote! Steven J. Gould said, "In science, fact can only mean 'confirmed to such a degree that it would be perverse to withhold provisional assent.'" {3}

In the early chapters of *Darwin on Trial*, Johnson does an excellent job of summarizing the evidence that has been around for decades calling Darwinian evolution into question. These include problems with the mechanism of mutation and natural selection, problems with finding transitional fossils between major groups when they should be numerous, problems with the molecular evidence for common descent, and severe problems with any scenario for the origin of life.

In a chapter titled "The Rules of Science" Johnson excels in illuminating the clever web evolutionists have drawn to insulate evolution from criticism. {4} In order to limit discussion to naturalistic causes, science is defined in purely naturalistic terms. In the Arkansas creation law decision, Judge Overton said science was defined as being

guided and explained by natural law, testable, tentative, and falsifiable. Overton got this from the so-called expert testimony of scientists collected for the trial by the ACLU. These criteria were used against creation on the one hand to say that a creator is not falsifiable, and also that the tenets of creation science were demonstrably false. How can something be non-falsifiable and false at the same time?

The conflict enters in when one realizes that creation by Darwinist evolution is as un-observable as creation by a supernatural creator. No one has ever observed any lineage changing into another and the few fossil transitions that exist are fragmentary and disputable. "As an explanation for modifications in populations, Darwinism is an empirical doctrine. As an explanation for how complex organisms came into existence in the first place, it is pure philosophy." [\[5\]](#)

In a chapter titled "Darwinist Religion" Johnson points out that despite the claims of scientists that evolution is secular, it is loaded with religious and philosophical implications. Most definitions of evolution emphasize its lack of purpose or goal. This makes evolution decidedly non-purposive in contrast to a theistic, purposive interpretation of nature. If it is the philosophic opposite of theism, evolution must be religious itself. Darwin himself constantly argued the superiority of descent with modification over creation. If scientific arguments can be made against theism, why can't scientific arguments be made for theism?

*Darwin on Trial* continues to sell, to be read, and to influence those open to consider the evidence. Since Johnson is not a scientist his book is highly readable to the educated layman. If you have never picked it up, you owe it to yourself to read what has become a classic in the creation/evolution controversy.

# Johnson Extends His Case against Evolution into Law and Education.

Over the years of speaking on the creation/evolution issue I have been asked many times why people get so upset over this issue. If it is just a question of scientific accuracy, why does it produce such emotional extremes? The answer, of course, is that the creation/evolution debate involves much more than science. At question is which worldview should hold sway in making public decisions.

In Phil Johnson's second book, *Reason in the Balance*, he makes this very point when he says, "What has really happened is that a new established religious philosophy has replaced the old one. Like the old philosophy, the new one is tolerant only up to a point, specifically, the point where its own right to rule the public square is threatened." [\[6\]](#)

The old philosophy Johnson speaks of is the theistic or Judeo-Christian worldview and the new philosophy is the materialist or naturalistic worldview. Johnson has referred to *Reason in the Balance* as his most significant and important work. That is because it is here that he lays the all important philosophical groundwork for the scientific, legal, and educational battleground of which the creation/evolution controversy is only a part.

That we no longer live in a country dominated by Judeo-Christian principles should be inherently obvious to most. But what many have missed is the concerted effort by the intellectual, naturalistic community to eliminate any possibility of debate of the worthiness of their position. On page 45 Johnson says,

*"Modernist discourse accordingly incorporates semantic devices—such as the labeling of theism as religion and naturalism as science—that work to prevent a dangerous debate over fundamental assumptions from breaking out in the open.*

*As the preceding chapter showed, however, these devices become transparent under the close inspection that an open debate tends to encourage. The best defense for modernist naturalism is to make sure the debate does not occur.”{7}*

Johnson is quick to point out that there is not some giant conspiracy, but simply a way of thinking that dominates the culture, even the thinking of many Christians.

Therefore, in the realm of science when considering the important question of the existence of a human mind, only the biochemical workings of the brain can be considered. Not because an immaterial reality has been disproved, but because it is outside the realm of materialistic science and therefore not worth discussing. Allowing the discussion in the first place lays bare a discussion of fundamental assumptions, the very thing that is to be avoided.

In education, “The goal is to produce self-defining adults who choose their own values and lifestyles from among a host of alternatives, rather than obedient children who follow a particular course laid down for them by their elders.”{8} The reason, of course, is if God is outside the scientific discussion of origins, then how we should live must also exclude any absolute code of ethics. This also precludes the underlying assumptions from being discussed.

In law, naturalism has become the established constitutional philosophy. Rather than freedom *of* religion, the courts are moving to a freedom *from* religion. The major justification is that “religion” is irrational when it enters the domain of science or a violation of the first amendment in public education. “Under current conditions, excluding theistic opinions means giving a monopoly to naturalistic opinions on subjects like whether humans are created by God and whether sexual intercourse should be reserved for marriage.”{9} What then are the strategies for breaking the monopoly?

## Can Darwinism Be Defeated?

The main thing Christian parents and teachers can do is to teach young thinkers to understand the techniques of good thinking and help them tune up their baloney detectors so they aren't fooled by the stock answers the authorities give to the tough questions.[{10}](#)

So says Phillip Johnson in his recent book, *Defeating Darwinism*. (For a fuller review see Rick Wade's article, [Defeating Darwinism: Phil Johnson Steals the Microphone](#).) Johnson is at his best here, relaying the many semantic and argumentative tricks used to cover up the inadequacies of Darwinism. In the chapter "Tuning Up Your Baloney Detector," Johnson introduces the reader to examples of the use of selective evidence, appeals to authority, ad hominem arguments, straw man arguments, begging the question, and lack of testability. This chapter will give you a good grasp of logical reasoning and investigative procedure.

Johnson also explains the big picture of his strategy to weaken the stranglehold of Darwinism on the intellectual community. He calls it *the wedge*. Darwinism is compared to a log that seems impenetrable. Upon close investigation, a small crack is discovered. "The widening crack is the important but seldom recognized difference between the facts revealed by scientific investigation and the materialist philosophy that dominates the scientific culture."[{11}](#) In order to split the log, the crack needs to be widened. Inserting a triangular shaped wedge and driving the pointed end further into the log can do this. As the wedge is driven further into the log, the wider portions of the wedge begin widening the crack.

Johnson sees his own books as the pointed end of the wedge, finding the crack and exposing its weaknesses. Other books in these initial efforts would certainly include the pioneering works of Henry Morris,[{12}](#) Duane Gish,[{13}](#) Charles Thaxton,[{14}](#) and even the agnostic Michael Denton.[{15}](#)

Following close behind and fulfilling the role of further widening the crack are the works of J. P. Moreland,[{16}](#) Michael Behe,[{17}](#) and William Dembski.[{18}](#) What is needed now to widen the crack further and eventually split the log are larger numbers of theistic scientists, philosophers, and social scientists to fill in the ever widening portions of the wedge exposing the weaknesses of naturalistic assumptions across the spectrum of academic disciplines.

Here Johnson's strategy meshes nicely with Probe Ministries. Much of our energy is spent educating young people in a Christian worldview through Mind Games Conferences, the ProbeCenter in Austin, Texas, and our website ([www.probe.org](http://www.probe.org)). We share with Johnson the joy of encouraging and opening doors for young people in the academic community. Johnson says,

*"If you know a gifted young person, help him or her to see the vision. Those who are called to it won't need any further encouragement. Once they have seen their calling, you had better step out of the way because you won't be able to stop them even if you try."*[{19}](#)

There is also an inherent risk in all this. Teaching young Christians to think critically and have the courage to join this exciting and meaningful cultural battle means they will also begin to examine their own faith critically. Some may even go through a period of doubt and deep questioning. While this may sound threatening, we shouldn't shy away. If Jesus truly is the way, the truth, and the light then any "truth" exposed to the light will endure. Our children will be stronger having put their faith to the test. The reward of possibly making a directional change in our downward spiraling culture is worth the risk.

## **Johnson Responds to the Intellectual**

# Elite

One of the reasons that Phillip Johnson has become a leader in the Intelligent Design movement is the combined effect of his tenured position on the law faculty of the prestigious University of California at Berkeley and his deftness and sheer enjoyment in taking on the power brokers within the established halls of academia. Johnson has traveled extensively in the U.S. and abroad. He has also lectured and debated before university audiences and faculties. His knowledge of debate, concise prose, and his likeable demeanor allows him to bring the issues to the table skillfully. Many are able to think clearly about these issues for perhaps the first time.

Another avenue Johnson has pursued with great success has been to write articles and review books for some of the leading magazines and newspapers in the country. Johnson's fourth book, *Objections Sustained: Subversive Essays on Evolution, Law & Culture*, [\[20\]](#) is a collection of his essays since the publication of *Darwin on Trial* in 1991. While most of the essays in the book were originally published in either the journal *First Things* or the paper *Books and Culture*, Johnson's pen has also been found in the pages of *The Atlantic*, *The Wall Street Journal*, *The Washington Times*, *The New Criterion*, and many other national and local magazines and newspapers. He has openly challenged some of the leading spokesmen for naturalistic evolution such as Stephen J. Gould and Richard Lewontin of Harvard, Richard Dawkins of Oxford University, and Daniel Dennet from Tufts University.

The point of all this is to draw the Darwinists out into the open where the debate can be seen and heard by all who are interested. Previously, creation was routinely dismissed as religion, but Johnson is not so easily swept aside since he has been able to expose the house of cards behind the bluster of Darwinism. The debate has crept more and more out in the

open.

Two examples come to mind. First, the National Association of Biology Teachers (NABT) was caught with its hand in the cookie jar. In 1995, they released a statement about evolution describing it as, among other things, unsupervised and impersonal. Such theological/philosophical concepts should have no place in a “scientific” statement. A storm of controversy sparked both within and outside the teachers’ ranks culminated in a reconsideration of the statement by the NABT board. At first the board voted unanimously to uphold the statement, and then a few days later, voted to remove the offending words. The *New York Times* remarked that “This surprising change in creed for the nation’s biology teachers is only one of many signs that the proponents of creationism, long stereotyped as anti-intellectual Bible-thumpers, have new allies and the hope of new credibility.”[{21}](#)

Second, the prestigious National Academy of Sciences has published two official publications attacking creationism[{22}](#) and supporting the teaching of evolution.[{23}](#) Rather than taking its critics head-on, these two books timidly revert to old and tattered evidences and appeals to authority. For instance, the National Academy boldly asserts that “there is no debate within the scientific community over whether evolution occurred, and there is no evidence that evolution has not occurred.”[{24}](#)

Science and Creationism says on the one hand, “Scientists can never be sure that a given explanation is complete and final.”[{25}](#) But evolution cannot really be questioned because “Nothing in biology makes sense in biology except in the light of evolution.”[{26}](#) Such obfuscation is now officially in the open arena—precisely where Johnson has been trying to force it to appear. The next ten to fifteen years promise to be exciting. I hope you continue to read Phillip Johnson and observe the ever broadening wedge drive deeper into the chinks of the Darwinian armor.

## Notes

1. National Academy of Sciences, *Teaching About Evolution and the Nature of Science* (Washington, D. C.: National Academy Press, 1998), 140. Available online at <http://www.nap.edu/readingroom/books/creationism/>.

National Academy of Sciences, *Science and Creationism: A View from the National Academy of Sciences* (Washington D. C.: National Academy Press, 1999), 35. Available online at <http://www.nap.edu/readingroom/books/evolution98>.

2. Phillip Johnson, *Darwin On Trial* (Downers Grove, IL: InterVarsity Press, 1991), 8.

3. Stephen J. Gould, "Evolution as Fact and Theory" in *Hen's Teeth and Horse's Toes* (New York: W. W. Norton, 1983), 255.

4. Johnson, *Darwin on Trial*, 111-122.

5. Ibid., 115.

6. Phillip E. Johnson, *Reason in the Balance: The Case Against Naturalism in Science, Law and Education* (Downers Grove, IL: InterVarsity Press, 1995), 37.

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11. Ibid., 92.

12. Henry Morris, *Scientific Creationism* (San Diego: Creation-Life Publishers, 1974).

13. Duane Gish, *Evolution: The Fossils Say No!* (San Diego: Creation-Life Publishers, 1972).

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16. J. P. Moreland, ed., *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer* (Downers Grove, IL: InterVarsity Press, 1994).
17. Michael Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: The Free Press, 1996).
18. William A. Dembski, *The Design Inference: Eliminating Chance through Small Probabilities* (New York: Cambridge University Press, 1998.) And, William A. Dembski, ed., *Mere Creation: Science, Faith and Intelligent Design* (Downers Grove, IL: InterVarsity Press, 1998).
19. Johnson, *Defeating Darwinism*, 96.
20. Johnson, *Objections Sustained: Subversive Essays on Evolution, Law & Culture* (Downers Grove, IL: InterVarsity Press, 1998).
21. Quoted in Johnson, *Objections Sustained*, p. 88.
22. *Science and Creationism*, see note 1.
23. *Teaching about Evolution and the Nature of Science*, see note 1.
24. *Ibid.*, 4.
25. *Science and Creationism*, 1.
26. *Ibid.*, ix.

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# Contact: A Eulogy to Carl Sagan

## The Paradox of the Movie *Contact*

At the very beginning of the movie *Contact*, you should have noticed in the lower right corner of the screen a little dedication which read, "For Carl." This, of course, is Carl Sagan (1934-1996), the Cornell astronomer and science advocate to the public, whose 1985 novel was the basis for the movie.(1) Sagan passed away in December 1996, before the movie was released, after he struggled for several years with a rare blood disorder.

The movie serves as a fitting eulogy for the most visible member of the scientific community within popular culture. The phrase "billions and billions", attributed to Sagan, has become a part of the public's lexicon of scientific phrases, even though Sagan never actually used the phrase in print or in any of his public broadcasts or appearances. Sagan used it self-effacingly as the title for his final and posthumously published book.

Many of us know of Carl Sagan, but we know very little about him. As a planetary astronomer, Sagan made significant contributions to the fields of chemical evolution, Martian topography, and Venusian meteorology. He also served as an official adviser to NASA on the *Mariner*, *Voyager*, and *Viking* unmanned space missions. Carl Sagan led the charge both to the public and in the Congressional halls of government funding for space research and particularly SETI, the Search for Extra-Terrestrial Intelligence.

Sagan was awarded the Peabody Award and an Emmy for his stunningly influential public television series, *Cosmos*. The accompanying book by the same title is the best-selling science book ever published in the English language.(2) He earned the Pulitzer Prize for his book *Dragons of Eden* on the evolution of human intelligence, and numerous other awards and honorary degrees. He is the most read scientific author in the world, and upon awarding him their highest honor, the National Science Foundation heralded his gifts to mankind as "infinite."

The main character of *Contact*, Ellie Arroway, played by Jodie Foster, portrays Sagan's life in miniature. While not sharing Sagan's awards and rapport with the public, Ellie Arroway is a brilliant, driven, self-reliant young astronomer obsessed with SETI. Dr. Arroway endures scorn and ridicule from the public and science for her dedication to discovering signs of extraterrestrial life, just as Sagan has. Arroway, like Sagan, confronted with the demons of superstition, fundamentalism, and scientific jealousy, fought back with reason, sarcastic wit, and sheer perseverance.

Arroway parrots Sagan's views on the need for a rational, non-religious view of reality to solve our problems, his hope for an extraterrestrial savior to save us from our technological adolescence, and the wonder and beauty of the cosmos pointing to our species as a curious, brave, precious accident of the universe. What is paradoxical about *Contact* is not the conflict between faith and reason, but who is forced to rely on faith and experience instead of evidence. Following Ellie's trip through the galaxy and her conversation with an alien, she returns with no documentation. What was an 18-hour experience for Ellie appeared to be an uneventful few seconds to everyone else. She must ask a Congressional panel to accept her account of events on *faith* with no evidence. If you were paying close enough attention as the film wound down, however, you could discover that this paradox is only apparent. Ellie's

data instruments recorded a full 18 hours—not a few seconds—of static. There was evidence of her experience, but it was withheld from Ellie by apprehensive government officials. The scientific validation once again highlights Sagan's conviction that science is mankind's only reliable tool in the discovery of truth, and that faith only covers up our fears and stifles our search for answers.

*Contact* is a must-see film for those who wish to comprehend and knowingly confront our culture's hostility towards faith that relies on revelation.

## **The Paradox of Sagan's Views of Religion**

One of the most perplexing aspects of the movie *Contact* is the seemingly confusing portrayal of religion. The confusion, I believe, is only superficial. If you reflect on how the different traditional religion is discarded as irrelevant at best and dangerous at worst.

Sagan's disdain for traditional religion is clear from the beginning. Events from Ellie's childhood flashback through the early part of the movie and lay the groundwork for her rational rejection of traditional Christianity. In the novel, Ellie's father is portrayed as a skeptic of revealed religion; he views the Bible as "half barbarian history and half fairy tales."<sup>(3)</sup> In the movie, Ellie admits to Palmer Joss that her father was asked to keep her home from Sunday School because she asked too many questions that could not be answered, such as "Where did Cain get his wife?" Although this and other objections offered in the novel are easily answered, they are left unchallenged as apparently sturdy nails in the Bible's coffin.

When Ellie's father dies in the movie, the clergyman offers harsh and uncaring words about some things being hard to understand, that we aren't meant to know, and that we just have to accept it as God's will. This deliberately presents

the God of the Bible as unknowable, cruelly inscrutable, and demanding of our acceptance. Ellie's response to the minister's attempt to be consoling is to berate herself on where she should have left extra medicine where it could have been reached in an emergency. Self-reliance and analytical thinking easily out-compete the minister's feeble lecture. In a conversation with Palmer Joss, Ellie confidently asserts that we created God so we wouldn't feel so small and alone. He's just an emotional crutch.

Two other characters in the film outline Sagan's view of the modern evangelical right. The long-haired preaching zealot is portrayed as a dangerous man, out of control and out of touch with reality. He later borrows a trick from Muslim fundamentalists by sacrificing himself in an attempt to derail the multinational project to build the travel machine. Richard Rank, the presidential advisor, represents that portion of the religious right that hungers and thirsts not for righteousness, but for political power. At a cabinet meeting, Rank offers sanctimonious drivel about science intruding into areas of faith and the message being morally ambiguous. If his remarks made you cringe with anger, they were supposed to.

And then there is Palmer Joss, the enigmatic, amoral, has-been priest. Palmer Joss's New Age religion sees truth as relative and the real issue as oppression. Joss has no quibble with the conclusions of science, just its attempts to overstep its boundaries and rule our lives. His knowledge of God is limited to an experience on which he does not elaborate and that intellect cannot touch. Perhaps the attraction between Joss and Arroway is the challenge they represent to each other. Joss's religion is at least scientifically informed and therefore intriguing to Ellie, and she is scorned by the same scientific establishment that Joss distrusts. A match made in Hollywood.

Sagan left no room for any faith that does not embrace the conclusions of a scientific materialism. This needs to be kept

in mind when Joss challenges her about her belief in God during the hearings. When the other multinational members speak up in defense of Joss's question, it is clear they are only referring to some politically correct supreme being, not the God of Abraham, Isaac, and Jacob.

## **Sagan's Extraterrestrial Hope**

Even in a scientifically sophisticated film such as Carl Sagan's *Contact*, we run into our culture's preoccupation with life beyond our planet. Though Carl Sagan spent some of his time combating the UFO crazies, he nevertheless held out a hope that there are civilizations out there waiting to discover us, or us them. Where does this conviction come from? For a scientific materialist and humanist like Carl Sagan, this confidence comes from two sources. First is the notion that if life evolved here, it is presumptuous of us to think that we are alone. Certainly life has evolved elsewhere! Second is Sagan's and others' fear that our species sits on the brink of self-destruction and we will need some outside help to overcome our predicament.

In a conversation with Palmer Joss, Ellie Arroway gives a calculation of sorts to explain her confidence in life having evolved elsewhere. She is looking up into the plethora of stars in the nighttime sky and says, "If just one in a million of those stars has planets, and if only one in a million of those has life, and if just one in a million of those has intelligent life, then there are millions of civilizations out there." It is a little surprising that a film of such high caliber would get this one wrong. If you take each of those probabilities and multiply them together, that's one in a million million million, or a billion billion, or in scientific notation,  $10$  to the 18th power. Current estimates suggest that the stars number approximately  $10$  to the 22nd power. That would technically leave only 10,000 civilizations in the universe, not millions. That would mean that we are

alone even in our own galaxy.

In another essay ([Are We Alone in the Universe?](#)) I summarized the calculations of Christian astronomer Hugh Ross. Ross estimated the probabilities of all the necessary conditions for life occurring by natural processes. Ross concluded that if all we have to depend on are physical and chemical processes, then we are alone in the universe. Life could have evolved nowhere else. Even the biochemical complexities of living cells are revealing that life requires intelligence ([See my review of Darwin's Black Box.](#)). Sagan's confidence that life is super-abundant in the universe is grossly out of proportion.

The second reason for Sagan's hope of other civilizations was expressed well by Ellie Arroway. An international panel, assigned the task of choosing the one individual who would enter the machine and perhaps visit this alien civilization, queried each candidate what one question they would ask. Ellie said she would want to know how they survived their technological adolescence without destroying themselves. Sagan has been a tireless supporter of nuclear disarmament. He truly feared that we would destroy ourselves before we reached our full potential. In the opening scene of his Cosmos television series, he remarked that our species was "young and curious and brave; it showed much promise."(4) Couple this fear with the conviction that there is no God, and the only source of hope for a salvation from ourselves is another civilization more advanced than us, giving us some pointers for survival.

This confidence that an alien culture that could contact us would be more advanced than us is not unreasonable. If they have the technology to purposefully contact us, and this is something we cannot do, then their technology must be beyond ours. What is never explained, however, even though it is raised in the movie, is why we would expect this alien culture to be benevolent. It is just as likely, if not more so, that an alien civilization would be more of the variety depicted in

the movie *Independence Day*. This hope reflects more on Carl Sagan's optimistic cosmic humanism that any scientific reality.

## Who Will Save Us, God or Aliens?

The movie *Contact* tells us of a more realistic scenario for a first encounter with an alien civilization, than, say, *Men in Black*. A radio signal is received from space that is broadcast at a frequency that is equal to the value of hydrogen times pi and gets our attention by counting the prime numbers from 1 to 101 in sequence. The message is authenticated as coming from the star Vega, 26 light years away. The message is eventually decoded and found to contain the plans for constructing a machine for one person to apparently travel out into the galaxy. Ellie Arroway, a young astronomer who discovers the message, eventually boards the machine and travels out into space for a close encounter of a supposedly more realistic kind.

A very tantalizing line is repeated three times in the course of the film. When Ellie Arroway, as a child, asks her father if there are any life forms out in the universe, he says that if there isn't, it would be an awful waste of space. Palmer Joss repeats the line to an adult Ellie as they engage in a conversation under a starry sky in Puerto Rico. It is a poignant scene as Ellie clearly is stunned as she recalls her father saying the same thing. Ellie, herself, repeats the phrase at the end of the film as she is addressing a group of school children and is asked if there is life out there in space.

Sagan has drawn a bead on the argument for the existence of God from design, or the teleological argument. Waste implies misdirected design. If the universe was created for us and we are alone, why does it have to be so big? Surely we could have survived quite well in a much smaller and economical universe. But if you think about it, Scripture proclaims that the

heavens declare the glory of God, not man (Ps. 19:1). Indeed, if the universe was created only for man's benefit, then it is a waste of space. We don't deserve it. But if the main purpose of the universe is to glorify the splendid, eternal, all-powerful God, it could never be big enough.

Another interesting theme is the form that the alien takes. After Ellie travels through the galaxy, she arrives at a large docking space station. She is somehow transported to a beach, resembling a picture of Pensacola, Florida she drew as a child. Eventually, a figure approaches. It is her father. The alien appears to her in the form of her father. He tells her that they thought this would make it easier for her.

It's fascinating that Sagan often complains that if God exists, why doesn't he make himself plain? Why not a cross in the sky or a mathematical formula in the Bible? Why is everything so obscure? One answer from Philip Yancey's book, *Disappointment with God*, is that God did reveal himself plainly to Israel during the Exodus and they still rebelled, and Jesus performed incredible miracles and still most rejected him. The Father does not want to coerce our love. So isn't it interesting that in Sagan's own story, when a superior intelligence wants to make contact with us, they put us in familiar surroundings, take on our form, and speak our language?! If they appeared to us in their true form, we would be repulsed. Isn't that precisely what the Father did for us in sending Jesus to live among us? It appears that Carl Sagan has unwittingly answered his own objection.

## **The Worldview of Carl Sagan**

Carl Sagan began his highly acclaimed public television series *Cosmos* with a grand overview of the universe and our place within it. With a crashing surf in the background, Sagan declares,

*"The cosmos is all that is or ever was or ever will be."*(5)

Sagan eloquently expresses his conviction that matter and energy are all that exist. He goes on to describe his awe and wonder of the universe. He describes a tingling in the spine, a catch in the voice, as the greatest of mysteries is approached. With excitement, Sagan tells us our tiny planetary home the Earth is lost somewhere between immensity and eternity, thus poignantly emphasizing our simultaneous value and insignificance.

In the movie *Contact*, Dr. Ellie Arroway expresses this awe and wonder at several points in the film. The most dramatic episode occurs during her galactic space flight when she is confronted with the wonders to be seen near the center of the galaxy. She is at a loss for words in the face of such beauty and humbly suggests that a poet may have been a better choice to send on the trip.

While this is all very moving, the great emotion seems strangely misplaced and inappropriate. If the cosmos is indeed all there is or ever was or ever will be, why get excited? If we are lost between immensity and eternity, shouldn't our reaction be one of existential terror, not awe? Sagan borrows his excitement from a Christian worldview where the heavens declare the glory of God, which *should* produce a tingle in the spine and a catch in the voice.

In the next to final scene in *Contact*, Ellie attempts to defend herself by finally admitting that she has no evidence of her trip through the galaxy. But she has been given something wonderful, a vision of the universe that tells us how tiny, insignificant, rare and precious we are. In *Cosmos*, Sagan reflects that while we are a species that is young and curious and brave, our place in the universe is to be compared to "a mote of dust that floats in the morning sky." (6)

How can we be tiny and insignificant and rare and precious at the same time? Clearly Sagan cannot live consistently within his own worldview. His view of the universe dictates that all

is meaningless chance and we are nothing special, yet he irrationally rejects the despair that logically follows in favor of being curious, brave, rare, and precious.

As Sagan neared death, many around the world were praying for him. Though clearly an enemy of the faith, the closing sentences of the novel *Contact* indicated a belief, a hope, in an intelligence that antedates the universe. Might he see the whole truth before he passes into eternity? In his final book *Billions and Billions*, his wife Ann Druyan writes, "Contrary to the fantasies of fundamentalists, there was no deathbed conversion... Even at this moment when anyone would be forgiven for turning away from the reality of our situation, Carl was unflinching."(7) In reflecting on the many cards and letters she received upon his death from people telling of the impact Sagan had on their lives, she writes, "These thoughts comfort me and lift me out of my heartache. They allow me to feel, without resorting to the supernatural, that Carl lives."(8) Sadly, Carl does live, but not as she believes. Remember that enemies of the faith are lost and in need of a Savior. But even though they may be prayed for and witnessed to by colleagues up to the end, many, including Carl Sagan, will still, defiantly, die in their sins. It is a bitter, needless grief.

## Notes

1. Carl Sagan, *Contact* (NY: Pocket Books [Simon and Schuster], 1986).
2. Carl Sagan, *The Demon-Haunted World* (New York: Ballantine Books, 1996), p. 459.
3. Sagan, *Contact*, p. 20.
4. Carl Sagan, *Cosmos* Video, "Episode 1: The Shores of the Cosmic Ocean" (Turner Home Entertainment, 1989).
5. Ibid.

6. Carl Sagan, *Cosmos* (New York: Random House, 1980), p. 4.
7. Carl Sagan, *Billions and Billions* (New York: Random House, 1997), p. 225.
8. *Ibid.*, p. 228.

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**See Also:**

- [Probe Answers Our E-mail: "You Are Full of Hatred and Bigotry"](#)

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# Christian Views of Science and Earth History – A Balanced Perspective

*Dr. Ray Bohlin and Rich Milne consider the three primary views held by Christians regarding the age of the earth and how the universe, life and man came to be: young earth creationism, progressive creationism, and theistic evolution. After considering the case for each one, they conclude with a call to work together for the cause of Christ.*



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

## Introduction of Three Views

How old is the earth? Did men live with dinosaurs? Are dinosaurs in the Bible? Where do cave men fit in the Bible? Did the flood cover the whole earth? How many animals were on

Noah's Ark? What does the word *day* in Genesis chapter one mean?

These are all common and difficult [questions your children may have asked](#), or maybe they are questions you have. What may surprise you is that evangelical Christians respond with numerous answers to each question. In reality, answers to the preceding questions largely depend on the answer to the first one. How old is the earth?

The diversity of opinion regarding this question inevitably leads to controversy, controversy that is often heated and remarkably lacking in grace and understanding. For those Christians who are practicing scientists, there is much at stake. Not only is one's view of Scripture on the firing line, but one's respect and job security in the scientific community is also at risk.

But we must say up front, that as important as this question is, it is of secondary importance to the quest of defeating Darwinism as currently presented to the culture. Educational leaders and evolutionary scientists are determined to present a fully naturalistic evolution as the only reasonable and scientific theory that can be discussed in the public education system. All Christians, whether old earth or young earth, should find common cause in dethroning philosophical naturalism as the reigning paradigm of education and science.

Returning to the age of the earth question, we would like to survey three general categories of response to this question that can be found among Christians today. For each of these three views, we will discuss their position on Genesis chapter one, since theological assumptions guide the process of discovering a scientific perspective. We will also discuss the basics of the scientific conclusions for each view. Finally, we will discuss the strengths of each view and what those holding the other two views think are the other's limitations.

The first view of science and earth history we will discuss is the recent or literal view. This position is often referred to as scientific creationism, creation science, or young earth creationism. Young earth creationists believe that the earth and the universe are only tens of thousands of years old and that Genesis gives us a straightforward account of God's creative activity.

The second position, progressive creationism or day-age creationism, holds that the earth and the universe are billions of years old. However, progressive creationists believe that God has created specifically and *ex nihilo* (out of nothing), throughout the billions of years of earth history. They do not believe that the days of Genesis refer to twenty-four hour days, but to long, indefinite periods of time.

A view traditionally known as theistic evolution comprises the third position. Theistic evolutionists essentially believe that the earth and the universe are not only billions of years old, but that there was little, if any, intervention by God during this time. The universe and life have evolved by God-ordained processes in nature. Theistic evolutionists, or evolutionary creationists as many prefer to be called, believe that the first chapter of Genesis is not meant to be read historically, but theologically. It is meant to be a description of God as the perfect Creator and transcendent over the gods of the surrounding ancient Near Eastern cultures.

Before we consider each position in greater detail, it is important to realize two things. First, we will paint in broad strokes when describing these views. Each has many sub-categories under its umbrella. Second, we will describe them as objectively and positively as we can without revealing our own position. We will reveal our position at the conclusion of this article.

## Recent or Literal Creation

Having introduced each position, we would like to review the theological and scientific foundations for the first one: recent or young earth creationism.

The young earth creationist firmly maintains that Genesis chapter one is a literal, historical document that briefly outlines God's creative activity during six literal twenty-four hour days. If one assumes that the genealogies of Genesis chapters five and eleven represent a reasonable pre-Israelite history of the world, then the date of creation cannot be much beyond thirty thousand years ago.[\[1\]](#)

A critical theological conclusion in this view is a world free of pain, suffering, and death prior to the Fall in Genesis chapter three. God's prescription in Genesis 1:29 to allow only green plants and fruit for food follows along with this conclusion.

The universal flood of Noah, recorded in Genesis chapters six through nine, is also a crucial part of this view. On a young earth, the vast layers of fossil-bearing sedimentary strata found all over the earth could not have had millions of years to accumulate. Therefore, the majority of these sedimentary layers are thought to have formed during Noah's flood. Much research activity by young earth creationists is directed along this line.[\[2\]](#)

Young earth creationists also maintain the integrity of what is called the Genesis kind, defined in Genesis 1:11, 12, and 21. The dog kind is frequently given as an example of the Genesis kind. While this is still a matter of research, it is suggested that God created a population of dog-like animals on the sixth day. Since then, the domestic dog, wolf, coyote, African wild dog, Australian dingo, and maybe even the fox have all descended from this original population. Young earth creationists suggest that God created the individual kinds

with an inherent ability to diversify within that kind. But a dog cannot cross these lines to evolve into say, a cat.

The literal view of Genesis chapter one has been predominant throughout Church history and it proposes a testable scientific model of the flood and the Genesis kind. Critics point out that there are immense difficulties explaining the entire geologic record in terms of the flood.<sup>{3}</sup> Principal among these problems is that it appears there are many more animals and plants buried in the rocks than could have been alive simultaneously on the earth just prior to the flood.

## **Progressive Creationism**

The next view to discuss is progressive creationism. The progressive creationist essentially believes that God has intervened throughout earth history to bring about His creation, but not all at once over six literal twenty-four hour days. The progressive creationist will accept the long ages of the earth and the universe while accepting that there is some historical significance to the creation account of Genesis.

A popular view of Genesis chapter one is called the day-age theory. This view agrees that the events described in the first chapter of Genesis are real events, but each day is millions, perhaps billions of years in duration. The Hebrew word for day, *yom*, can mean an indefinite period of time such as in Genesis 2:4. This verse summarizes the first thirty-four verses of the Bible by stating, "This is the account of the heavens and the earth when they were created, in the *day* that the Lord God made the earth and the heaven" (emphasis added). In this case, the word *day* refers to the previous seven days of the creation week. Consequently, the progressive creationist feels there is justification in rendering the days of Genesis chapter one as indefinite periods of time.<sup>{4}</sup>

Therefore, the progressive creationist has no problem with the

standard astronomical and geological ages for the universe and the earth. A universe of fifteen billion years and an earth of 4.5 billion years are acceptable. In regard to evolution, however, their position is similar to the young earth creationists'. Progressive creationists accept much of what would be called microevolution, adaptation within a species and even some larger changes. But macroevolutionary changes such as a bird evolving from a fish are not seen as a viable process.[\[5\]](#)

These are the basic beliefs of most progressive creationists. What do they think is the predominant reason for holding to this perspective? Most will tell you that the evidence for an old universe and earth is so strong that they have searched for a way for Genesis chapter one to be understood in this framework. So the agreement with standard geology and astronomy is critical to them. Progressive creationists also find the biblical necessity for distinct evidence for God's creative activity so strong that the lack of macroevolutionary evidence also dovetails well with their position.

The most difficult problem for them to face is the requirement for pain, suffering, and death to be a necessary part of God's creation prior to Adam's sin. The atheistic evolutionist, Stephen J. Gould, from Harvard, commented on this problem of God's design over these many millions of years when he said, "The price of perfect design is messy relentless slaughter."[\[6\]](#) There are also major discrepancies with the order of events in earth history and the order given in Genesis. For instance if the days of Genesis are millions of years long, then when flowers were created on day three, it would be millions of years before pollinators, such as bees, were created on days five and six.

## **Theistic Evolution**

Having covered young earth creationism and progressive creationism, we will now turn to the view called [theistic](#)

[evolution](#) and then discuss our own position with a call to mark the common enemy of the evangelical community.

Most theistic evolutionists see little, if any, historical significance to the opening chapters of Genesis. They suggest that the Genesis narrative was designed to show the Israelites that there is one God and He has created everything, including those things which the surrounding nations worshipped as gods. In essence, Genesis chapter one is religious and theological, not historical and scientific.[{7}](#)

Another view of the account of creation according to Genesis that has become popular with progressive creationists as well as theistic evolutionists is the structural framework hypothesis.[{8}](#) This literary framework begins with the earth formless and void as stated in Genesis 1:2. The first three days of creation remove the formlessness of the earth, and the last three days fill the void of the earth. On days one through three God creates light, sea and sky, and the land. On days four through six, God fills the heavens, sky, sea, and land. There was a pattern in the ancient Near East of a perfect work being completed in six days with a seventh day of rest. The six days were divided into three groups of two days each. In Genesis chapter one we also have the six days of work with a seventh day of rest, but the six days are divided into two groups of three days. So maybe this was only meant to say that God is Creator and His work is perfect.

Essentially, theistic evolutionists accept nearly all the scientific data of evolution including not only the age of the cosmos, but also the evolutionary relatedness of all living creatures. God either guided evolution or created the evolutionary process to proceed without need of interference.

Theistic evolutionists maintain that the evidence for evolution is so strong that they have simply reconciled their faith with reality. Since reading Genesis historically does not agree with what they perceive to be the truth about earth

history, then Genesis, if it is to be considered God's Word, must mean something else. They do believe that God is continually upholding the universe, so He is involved in His creation.

Theistic evolution suffers the same problem with pain, suffering, and death before the Fall that progressive creation endures.[{9}](#) In addition, the many problems cited concerning the origin of life, the origin of major groups of organisms, and the origin of man remain severe problems for the theistic evolutionist as well as the secular evolutionist.[{10}](#) Some theistic evolutionists also quarrel with a literal Adam and Eve. If humans evolved from ape-like ancestors, then who were Adam and Eve? If Adam and Eve were not literal people, then is the Fall real? And how is redemption necessary if they are imaginary?

## **Call for Caution and Discussion**

We have discussed the biblical and scientific foundations of three different Christian views of science and earth history. In so doing, we have tried to convey a sense of their strengths and limitations. The issue of the age of the earth is very controversial among evangelicals, particularly those who have chosen some field of science as their career.

Our intention has been to present these perspectives as objectively as possible so you, the reader, can make an informed decision. We have purposefully kept our own views out of this discussion until now. We would like to take a moment and explain the reasoning behind our position.

We have studied this issue for over twenty years and have read scholars, both biblical and scientific from all sides of the question. For some ten years now, we have been confirmed fence sitters. Yes, we are sorry to disappoint those of you who were waiting for us to tell you which view makes more sense, but we are decidedly undecided. This is by no means a political

decision. We are not trying to please all sides, because if that were the case, we know we would please no one. The fact is, we are still searching.

Biblically, we find the young earth approach of six consecutive 24-hour days and a catastrophic universal flood to make the most sense. However, we find the evidence from science for a great age for the universe and the earth to be nearly overwhelming. We just do not know how to resolve the conflict yet. Earlier, we emphasized that the age question, while certainly important, is not the primary question in the origins debate. The question of chance versus design is the foremost issue. The time frame over which God accomplished His creation is not central.

Such indecision is not necessarily a bad thing. Davis Young in his book *Christianity and the Age of the Earth*, gives a wise caution. Young outlines that both science and theology have their mysteries that remain unsolvable. And if each has its own mystery, how can we expect them to mesh perfectly?[{11}](#) The great 20th century evangelist, Francis Schaeffer said:

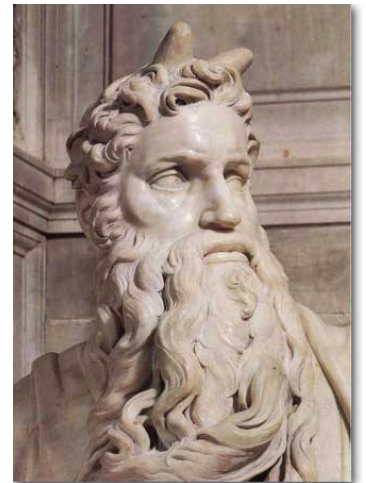
We must take ample time, and sometimes this will mean a long time, to consider whether the apparent clash between science and revelation means that the theory set forth by science is wrong or whether we must reconsider what we thought the Bible says. [{12}](#)

“What we thought the Bible says”? What does *that* mean?



In the sixteenth century, Michelangelo sculpted Moses coming down from Mount Sinai with two bumps on his head. The word which describes Moses' face as he came off the mountain, we now know means shining light, meaning Moses' face was radiant from having been in God's presence. But at that time it was thought to mean "goat horns."

So Michelangelo sculpted Moses with two horns on his head. That is what they thought the Bible literally said. Now we know better, and we changed our interpretation of this Scripture based on more accurate information. We believe we need even more accurate information from both the Bible and science to answer the age of the earth question.



The question concerning the age of the earth comes down to a matter of interpretation, both of science and the Bible. Ultimately, we believe there is a resolution to this dilemma. All truth is God's truth. Some suggest that perhaps God has created a universe with apparent age. That is certainly possible, but certain implications of this make us very uncomfortable. It is certainly true that any form of creation out of nothing implies some form of apparent age. God created

Adam as an adult who appeared to have been alive for several decades though only a few seconds into his existence.

Scientists have observed supernova from galaxies that are hundreds of thousands of light years away. We know that many of these galaxies must be this distant because if they were all within a few thousand light years, then the nighttime sky would be brilliant indeed. These distant galaxies are usually explained in terms of God creating the light in transit so we can see them today. These observed star explosions mean that they never happened in an apparent age universe. Therefore, we are viewing an event that never occurred. This is like having videotape of Adam's birth. Would supernovas that never happened make God deceptive?

Therefore, we believe we must approach this question with humility and tolerance for those with different convictions. The truth will eventually be known. In the meantime, let us search for it together without snipping at each other's heels.

## Notes

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Hand," *Natural History* (November 1990):8. Mark Van Bebber and Paul S. Taylor, *Creation and Time: A Report on the Progressive Creationist Book by Hugh Ross* (Mesa, AZ: Eden Communications, 1994), 128.

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10. Phillip E. Johnson, *Darwin on Trial*, 2nd ed. (Downers Grove, IL: InterVarsity Press, 1993), 15-112, 166-170.

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## Evolution and the Pope

Are Science and Religion at War?

We have just passed the one hundredth anniversary of one of the more important books written about the interaction of science and Christianity. The book's title, *A History of the Warfare of Science with Theology in Christendom*, says much about the book.

Andrew White wrote the book in 1896 to justify his belief that a university should be without any religious affiliation. He

was the founder and first president of Cornell University in New York and was very outspoken in his views about the hindrance religion has been to scientific progress. It was White who popularized the view that there was a war between science and Christianity, and that in all cases science had ultimately been shown to be right.

*A History of the Warfare of Science and Theology in Christendom* is one long polemic attempting to show that religion has always held back the advance of science. The author maintains that if only theology would quit sticking its nose into the tent of science, everyone would be better off. Well into this century the book was regarded as being an important statement on the tension between science and religion.

One hundred years, however, has changed the tone of the discussion. Today many historians of science would agree that Christianity was a significant foundation for modern science, even though it is now viewed as an outmoded belief. For several reasons, then, it came to be commonly accepted that Christianity had played a key role in preparing the way for the development of modern science. First, Christians assumed they lived in a world that could be understood because it was created by a rational God—the same God who had also created them. This gave early scientists some reason to assume that nature might obey laws that could be known. Speaking about the view of the universe that the Church gave to the culture around it, the great mathematician and philosopher Alfred North Whitehead said early in this century, “When we compare this tone of thought [the faith in reason and the regularity of the universe] in Europe with the attitude of other civilizations when left to themselves, there seems but one source for its origin. It must come from the medieval insistence on the rationality of God.”

Second, not only was the universe understandable because a rational God made it, but the Bible encouraged believers to

look at God's creation for signs of His handiwork. For example, as early as the Psalms David had proclaimed, "The heavens are telling of the glory of God" (Ps. 19:1). Scriptures such as this one, and many others, encouraged Christians to study nature to understand how it glorified God. Christians were confident that nature's design would show forth God's glory.

However, in the nineteenth and twentieth centuries much happened that eroded Christian confidence that they lived in a world crafted by God. In particular, Darwin's theory (that all organisms were descended from a common ancestor and that any appearances of design could be explained by natural selection working over long periods of time) came to have great acceptance among almost all scientists. For many the theory of evolution came to be seen as the complete answer as to why the world is as it is. For them, there was no need at all for a Creator or God to explain anything because evolution could, or would, explain everything.

A notable example of this position is the famous statement by astronomer Carl Sagan, "The universe is all that is or ever was or ever will be." With these words he began his immensely popular series about the universe, *Cosmos*. His words are the creed of the materialist (i.e., if it can be counted, measured, observed, experimented on, understood by natural laws, then it is real). Anything else is either meaningless or, at least, not scientific. According to this view, mountain goats are real because we can see them, touch them, put them in zoos. Angels, on the other hand, are not real because we can do none of these things to them. Science has to do with facts, and if there is any place for religion it is in the consideration of morals or ethics or those other areas where there are no facts.

But some people, such as Stephen Gould, a palaeontologist at Harvard, have remained open to dialogue on how religion and science can coexist. In his monthly column for *Natural History*

magazine, he recently put forth his latest elaboration of how evolution, science, and religion are related. His proposed resolution of this issue is the theme of this essay.

Stephen Gould, the evolutionary writer and scientist, addresses what are the proper bounds of science and religion in a recent *Natural History* magazine. He proposes a complete answer to the problem of how they relate to one another. Simply put, they don't interact at all. "The net of science," says Gould, "covers the empirical universe: what it is made of (fact) and why does it work this way (theory). The net of religion extends over questions of moral meaning and value. These two magisteria do not overlap."

The Roman Catholic Church uses the term *magisterium* to refer to its authority to teach in areas relating to the Bible and its interpretation. Gould borrows this term and applies it as well to the legitimate area that science teaches. So the Church may speak about moral issues and science about matters of fact and theory. For this somewhat unbalanced division he creates the wonderful phrase "nonoverlapping magisteria."

## **Has the Pope's View of Evolution Evolved?**

Gould is certainly free to pontificate. However, what is somewhat mystifying is how he draws in Pope John Paul II as a prime supporter not only of his interesting distinction between science and religion, but also as a firm supporter of evolution!

On October 22, 1996, Pope John Paul addressed the Pontifical Academy of Sciences. The theme of their conference was to be the origin of life and evolution, so John Paul helpfully laid out what the Church had said over the last fifty years.

The Pope made clear that his predecessor, Pope Pius XI, had "considered the doctrine of 'evolutionism' a serious hypothesis." But, John Paul says, "Today, almost half a

century after the publication of the encyclical [of Pius XI], new knowledge has led to the recognition of the theory of evolution as more than a hypothesis. It is indeed remarkable that this theory has been progressively accepted by researchers, following a series of discoveries in various fields of knowledge. The convergence, neither sought nor fabricated, of the results of work that was conducted independently is in itself a significant argument in favor of this theory.”

That is as far as John Paul’s statement goes: evolution has moved from a serious hypothesis to a theory with significant arguments in its favor. Yet from this statement, Gould triumphantly draws an amazing observation:

*In conclusion, Pius had grudgingly admitted evolution as a legitimate hypothesis that he regarded as only tentatively supported and potentially (as I suspect he hoped) untrue. John Paul, almost fifty years later...adds that additional data and theory have placed the factuality of evolution beyond reasonable doubt. Sincere Christians must now accept evolution not merely as a plausible possibility, but also as an effectively proven fact.*

Is this really what the Pope said? We’ll now look more carefully at Gould’s interpretation of the Pope’s statement.

## **Does Evolution Fit the Truth About Man?**

Stephen Gould, writing in *Natural History*, makes the Pope say something far more significant, and from Gould’s point of view, a concession of defeat. How does Gould paraphrase John Paul’s statement? “Sincere Christians must now accept evolution not merely as a plausible possibility, but also as an effectively proven fact.”

Nevertheless, either by reading too rapidly or possessing too much enthusiasm for his own position, Gould misses critical

distinctions that the Pope's announcement makes. To argue that the Pope's statement ("new knowledge has led to the recognition of the theory of evolution as more than a hypothesis") means that "sincere Christians must now accept evolution not merely as a plausible possibility, but also as an effectively proven fact" is ludicrous. Gould almost twists the Pope's statement to contradict what he does say.

In fact, in his next paragraph, the Pope states: "A theory is a metascientific elaboration, distinct from the results of observation but consistent with them...Furthermore, while the formulation of a theory like evolution complies with the need for consistency with observed data, it borrows certain notions from natural philosophy."

"Metascientific" means going beyond the realms of science into an abstract, philosophical arena. So, the Pope says, evolution is more than a hypothesis; it is a theory, but as such, it also is "distinct from the result of observation" and borrows from philosophy. His next statement is one Gould may have skipped over:

*And, to tell the truth, rather than the theory of evolution, we should speak of several theories of evolution. On the one hand, this plurality has to do with the different explanations advanced for the mechanism of evolution, and on the other, with the various philosophies on which it is based. Hence the existence of materialist, reductionist and spiritualist interpretations.*

So, rather than saying the words Gould puts in his mouth, the Pope actually says that not only is evolution based on a philosophy, but there are several theories, and he goes on to rule out some of them, at least for Roman Catholics. "Theories of evolution which, in accordance with the philosophies inspiring them, consider the spirit as emerging from the forces of living matter or as a mere epiphenomenon of this

matter, are incompatible with the truth about man.”

Gould wants the Pope to say, “You talk about science, and I’ll talk about religion. You can have the world of facts, and I’ll take what’s left. These areas won’t overlap with each other, and we’ll each stay in our own gardens.” But the Pope is unwilling to follow Gould’s convenient (for science) scheme. Instead, he firmly declares “The Church’s magisterium is directly concerned with the question of evolution, for it involves the conception of man.” This is what all of us who are Christians should be saying. Evolution, as it is usually put forward, is not just a theory about ancient data. It is also a philosophical statement about where man came from and what, if any, importance he has. While Gould claims his scientific views are not related to his moral views, his words give little support to this.

## **Is Christianity Concerned About Evolutionary Theories?**

Early in his essay Gould has dispatched creationists with a few quick paragraphs. “Creationism does not pit science against religion, for no such conflict exists. Creationism does not raise any unsettled intellectual issues about the nature of biology or the history of life. Creationism is a local and parochial movement, powerful only in the United States among Western nations, and prevalent only among the few sectors of American Protestantism that choose to read the Bible as an inerrant document, literally true in every jot and tittle.” Well, so much for a fair, informed assessment of one’s opponents.

First he defines out of existence what creationists see as a central argument by merely saying “no such conflict exists.” Then he proceeds to caricature creationists as a fringe group only found among a small group of Protestants. Prior to this he has equated “scientific creation,” the view that the earth

was created in six days and “only a few thousand years old,” with all of creationism, which he fails to note includes even those who believe in evolution and an earth billions of years old, but believe God superintended the process.

Gould’s claim that “creationism does not raise any unsettled issues” ignores significant questions that have been raised about how life first arose from chemicals, about the source of the genetic code, and of the origination of new biological structures. But does the Pope truly believe in Gould’s nonoverlapping magisteria? Gould’s summation of the opening of John Paul’s speech is that he “begins by summarizing Pius’s older encyclical of 1950, and particularly reaffirming the NOMA principle [nonoverlapping magisteria] nothing new here.”

Is this really what the Pope said? He begins by saying that “the origins of life and evolution [are] an essential subject which deeply interests the Church, since revelation, for its part, contains teachings concerning the nature and origins of man. . . . I would like to remind you that the magisterium of the Church has already made pronouncements on these matters within the framework of her own competence.” This hardly sounds like there is no overlap between what the Church teaches and science. Toward the end of his remarks John Paul flatly contradicts Gould’s neat distinction: “The Church’s magisterium is directly concerned with the question of evolution for it involves the conception of man.” So it would seem that Gould has used those parts of the Pope’s speech which he likes and disregarded the rest.

Two points are important here. First, while Gould sets forth an interesting view about the relationship between science and religion and gives a new name to what used to be called “complementarity,” it is not the view espoused by the Pope, and is almost antithetical to it. Second, Gould himself does not abide by this strict separationism in his own views, even when he claims to. When Gould actually makes his own moral position clear, it is hard to escape the conclusion that it

comes directly from his views and philosophy as a scientist.

## Why Trust Your Mind If No One Made It?

“As a moral position...I prefer the ‘cold bath’ theory that nature can be truly ‘cruel’ and ‘indifferent.’” This is the summary of Harvard paleontologist Stephen Gould in his *Natural History* essay on how science and religion should relate to each other. “Science,” Gould says, “covers the empirical universe: what is it made of (fact) and why does it work (theory).” Religion is left to cover “questions of moral meaning and value.”

Gould calls his position nonoverlapping magisteria and claims the Pope holds the same view. As we stated earlier, this is far from true. But Gould then goes on to describe the moral view he takes.

Gould’s position, which he immediately claims is not “a deduction from my knowledge of nature’s factuality” is “nature was not constructed as our eventual abode, didn’t know we were coming... and doesn’t give a \_\_\_\_\_ about us (speaking metaphorically).” He says he finds such a view “liberating...because we then become free to conduct moral discourse...in our own terms, spared from the delusion that we might read moral truth passively from nature’s factuality.” It is indeed hard not to draw the conclusion that Gould has read his view about the process of evolution into his own moral position. How does he know that nature was not constructed for us if not from his studies of the natural world? How would he know it doesn’t care about us unless somehow he saw this in his studies? Where else might he get such ideas?

In his speech, Pope John Paul II spoke quite candidly of his view of evolution:

*And, to tell the truth, rather than the theory of evolution, we should speak of several theories of evolution. On the one*

*hand, this plurality has to do with the different explanations advanced for the mechanism of evolution, and on the other, with the various philosophies on which it is based. Hence the existence of materialist, reductionist and spiritualist interpretations.*

Stephen Gould has a materialist philosophy behind his theory of evolution. He believes that the material universe is all that exists, and that our own consciousness is a chance phenomena and does not come from a Creator. So, for Gould, where else can he draw his views about the meaning of life and what might be moral? His very thinking is a chance product of evolutionary processes that had no design, either to produce man or to give him a mind. Nonetheless, Gould trusts his mind not only to be able to distinguish between science and religion, he is sure that they should not influence one another.

Gould's view is a version of what is the common denominator of much of science today. At all costs religion must be kept out of science, or else science will cease to exist. Only material answers can be given to any question because the intervention of a Creator would negate the laws that govern science. What is missed in all of this is that without a Creator of some kind, not only is there no basis to trust the human mind to make true observations, but there is no reason to suppose that it would matter. Why worry about science or religion, and certainly why worry about whether they could have a negative effect on each other? If there is no God, there can only be arbitrary judgments. It is God who gives meaning to what we say and believe.

Christians serve a rational God who made both them and the world. On what does Gould base his trust in either science or the mind?

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