

## INTEGRATING FAITH AND LEARNING IN THE TEACHING OF BIOLOGY

Earl Aagaard  
Pacific Union College

### Introduction

Seventh-day Adventist schools and colleges were founded to provide an education that did not alienate children from their Biblical beliefs and Christian worldview. If “the fear of the Lord is the beginning of wisdom”, we should never be afraid to incorporate the Biblical perspective into the educational process, whether we are parents teaching our own children, or teachers with a roomful of other people’s children. It seems to me that in the U.S., we are not doing a very good job of this basic responsibility. Sadly, I find that significant numbers of my students arrive at college *without* a solid commitment to a traditionally theistic worldview.

I urge Adventist educators to overtly evangelize their students for Biblical theism. There are two components to this evangelism – the first (the “learning” part from our title) is to regularly, explicitly, and boldly expose the fallacy that is being perpetrated by the materialists in our societies, and that is repeated and bolstered by lazy, unthinking and/or careless theists. The second (the “faith” part) is to regularly, explicitly, and boldly let students know of one’s own commitment to a God-centered and Biblical world view. The fallacy spreading through our cultures today is the message that only “religion” is characterized by faith in what we can’t see or touch or measure, while “science” limits itself to the hard cold facts, and to those things that can be tested and proved. As we saw last week, every human being is a “believer” in the sense that we all have commitments beyond what science can tell us. The “science is only about facts” fallacy is being highlighted by the Intelligent Design movement, and I urge every SDA teacher, in science and in other fields, to become familiar with the current arguments, and to introduce their students to both sides of the issue, as a “vaccination” against the seductive materialistic influences that surround us.

### Part 1: Science is not neutral.

"Science as a way of knowing" is the reigning paradigm of Western culture. But, what do we mean when we say "science"? There are multiple definitions for the word, as seen by reference to any dictionary. Furthermore, the definition has undergone "evolution" in the last several decades -- from a process dealing with facts, data, and truth to a “way of knowing” that looks for "natural" causes ... the definition of "science" has gradually become "applied philosophical materialism".

Richard Dawkins, England's preeminent popularizer of Darwinism, writes in *The Blind Watchmaker*, (Penguin Books, 1986, page 1) "Biology is the study of complicated things that give the appearance of having been designed for a purpose." The rest of the book is then dedicated to convincing the reader that this appearance (the data) is deceptive, and that living things are the products of blind, natural forces, with no input from intelligence of any kind.

It is the materialists themselves who tell us that they are doing a kind of evangelism. Richard Lewontin wrote:

"We take the side of science *in spite of* the patent absurdity of some of its constructs, *in spite of* its failure to fulfill many of its extravagant promises of health and life, *in spite of* the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism....The primary problem is not to provide the public with the knowledge of how far it is to the nearest star and what genes are made of....Rather, the problem is to get them to reject irrational and supernatural explanations of the world, the demons that exist only in their imaginations, and to accept a social and intellectual apparatus, Science, as the only begetter of truth."

Scott C. Todd (1999), of the Department of Biology at Kansas State University, makes the materialistic bias of the scientific community even more explicit:

"Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not naturalistic."

It should be apparent that most practitioners of science have an atheistic bias, whether consciously or unconsciously. But, this is a relatively new phenomenon. The "fathers" of science: Bacon, Galileo, Kepler, Newton, Boyle, and others, were theists, indicating that the current link between atheism and science is not a necessary one. It is the object of the Intelligent Design movement to bring the scientific enterprise back from Darwinism to its empirical roots.

## Part 2: What is Intelligent Design Theory, and what is Darwinism?

Perhaps the earliest ID reference is found in the Bible. In Romans 1:20, the apostle Paul writes, "Ever since the creation of the world his invisible nature, namely, his eternal power and deity, has been clearly perceived in the things that have been made." The argument was most famously expounded by William Paley of England, in *Natural Theology - or Evidences of the Existence and Attributes of the Deity Collected from the Appearances of Nature*. It is in this book that Paley wrote:

"In crossing a heath, suppose I pitched my foot against a *stone*, and were asked how the stone came to be there; I might possibly answer, that, for anything I knew to the contrary, it had lain there for ever; nor would it perhaps be very easy to show the absurdity of this answer. But suppose I had found a *watch* upon the ground, and it should be inquired how the watch happened to be in that place; I should hardly think of the answer which I had before given, that for anything I knew, the watch might have always been there."

Subsequently, Paley argues

"...that the watch must have had a maker; that there must have existed, at some time, and at some place or other, an artificer or artificers, who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use."

Charles Darwin had read and appreciated Paley's work when a young man. However, on his voyage in the *Beagle*, Darwin made many observations, and collected many specimens, that were in conflict with the rather naive creationism of his time. In *The Origin*, he gathered together an enormous amount of contemporary material and wrapped it around one key insight, Natural Selection, producing a book of exposition that was at once utterly convincing, and seemingly scientific, owing its force to the mass of empirical data Darwin had gathered.

Describing examples of man's selection of farm animals and other organisms, Darwin argued that the natural variation that everyone can see within a species, combined with the tendency of organisms to overpopulate their environment, would inevitably set up a competition for the necessities of life. This would result in new generations with MORE of the variations that offered an advantage in the competition. Since organisms surviving the longest were likely to produce the most offspring, it was plain that any favorable variation inheritable from the parental generation would tend to be more prevalent in each subsequent generation, so long as the environment continued to favor it. The message of Darwin's thesis was that change comes slowly, step by tiny step, and never in sudden large "jumps". Minuscule improvements accumulate in the bodies of living organisms, and finally, after many millions of years, we can see the stupendous changes, although only by examining the fossil record.

By 1949, George Gaylord Simpson could bear witness to his faith, without criticism, in the following words:

"Although many details remain to be worked out, it is already evident that all the objective phenomena of the history of life can be explained by purely naturalistic or, in a proper sense of the sometimes abused word, materialistic factors. They are readily explicable on the basis of differential reproduction in populations (the main factor in the modern conception of natural selection) and of the mainly random interplay of the known processes of heredity....  
*Man is the result of a purposeless and natural process that did not have him in mind*"  
(emphasis added)

However, there was a time bomb waiting to go off under the Darwinists' seemingly impregnable fortress. In 1989, a lawyer named Phillip Johnson visited London, and read Richard Dawkins' book. His initial reaction was that, if this was the best evidence that the scientific community had for the materialistic origins of life and its current complexity, then a serious fraud was being perpetrated on a too-credulous public. The modern Intelligent Design movement had its genesis in a London hotel. Johnson decided to deal with a single, very basic question: Did the scientific evidence available actually support the idea that mutations and natural selection were the creative force that is essential to the Darwinist claims?

In a series of public lectures, well-publicized debates, and sharply worded essays and reviews, Phillip Johnson took his case to the public, promoting his book, *Darwin On Trial*, and constantly reiterating his question about the adequacy of the Darwinian explanation. Young scientists, philosophers, mathematicians, and others dissatisfied with the scientific dogma of the day, read his work or heard him speak, and began to get in touch with Johnson and with each other. The early efforts of what became the Intelligent Design Movement were written by a lawyer and by a couple of philosophers, and were easy for the scientific mainstream to ignore. The first really effective "shot across the bows" of materialism was fired in 1996, when Michael Behe, a working biochemist, published *Darwin's Black Box*. In his book, Behe pointed out (as Denton had, ten years earlier) that the cell, far from being a "simple little lump of albuminous combination of carbon", as thought in Darwin's day, was actually an entire factory, filled with molecular machines of stunning precision and complexity. Within this factory, there are numerous individual machines and cellular systems in which varying numbers of parts work together in such a way that they will only function *if every single piece is in place*. Removal of any piece does not reduce the machine's

efficiency; it eliminates entirely the function of the organelle. He called this situation "irreducible complexity", and it was a dagger aimed at the heart of Darwinism.

The real challenge in Behe's analysis lies in the hyper-gradual nature of evolutionary change envisioned by Charles Darwin and his followers. Quite simply, if all the pieces must be present in order for a cilium, or other organelle, to function and give its owner an advantage, then the pieces could not possibly be accumulated step by tiny step. Only if a cilium were "created" all at once, could it give survival advantage, and thus be retained and passed along to future generations. Darwin himself, in *The Origin of Species*, laid out a way to disprove Evolution by natural selection:

"If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."

Michael Behe claimed that he had found not one such organ, but an entire cell full of them, and that this data relegates Darwinism, as a mechanism for origins, to the proverbial scrap bin for theories that have been tested and found wanting.

### 3. Why Intelligent Design is "more scientific" than Darwinism

Darwinism owes its popularity and staying power to its materialistic core. But, science itself is beginning to suffer from the straitjacket into which it has been shoved. By eliminating an entire class of explanations from consideration (the very explanations that address the newest discoveries in the Biology laboratories), Darwinists have assured that they will have only increasingly lame "just-so stories" to explain much of what we know.

Until very recently, Intelligent Design was in the same boat. The ID position had not been put on a fully scientific footing in 1998, when Bill Dembski published his monograph, *The Design Inference*. William Dembski had real academic weight, with doctorates in both mathematics and philosophy, as well as earned degrees in theology and psychology and two fellowships from the National Science Foundation. In his book, he offered a "signature" for design – the presence of what he called "specified complexity" (or "specified small probability"). That is to say, design is recognized in highly improbable events (complexity) that also make up an independently identifiable pattern (specification). The concept is familiar to anyone who has seen the movie *First Contact*, which came out several years ago. In the film, scientists are receiving and analyzing radio signals from outer space. To our ears, it sounds like a lot of static, but a whole bank of computers are listening for patterns. When, through the static, comes what sounds like Morse code, the scientists are all on the alert. And when the computers interpret the code to be a sequence of prime numbers, in precise order from the lowest through progressively higher primes, everyone listening knows that this radio signal is the result of intelligent design. Among the random dots and dashes streaming in from outer space, the Morse code for 1,3,5 would have provoked little excitement, because the probability of that sequence occurring is small, but not unimaginably so. However, when these were followed by the code for 7,11,13,17,19,23,29,31, etc. even the naturally skeptical were convinced. A highly improbable sequence of dots and dashes, conforming to a pattern known ahead of time, was recognized by the scientists in the film as being the product of intelligence. Furthermore, no film reviewer wrote that they were foolish to accept such a proposition, and no scientist complained about the "non-scientific" premise of the film.

The 1968 film, *2001: A Space Odyssey* shows us that it doesn't take a string of prime numbers to indicate intelligence to reasonable human beings with open minds. In the film, a monolith appears at various times and places. It is a simple shape – a polished rectangular block shaped much like an enormous domino – but it is immediately obvious to anyone who sees it, that it did not occur naturally. Never do natural processes give us such an object. Like Paley's pocket watch, the monolith appeals to us as a designed object because we immediately recognize the impossibility of a natural origin. (see <http://www.2001principle.net/>)

Unlike Paley, who depended on our intuition to infer design, Dembski carefully outlined an objective method for detecting his signature of design. Any string of 23 letters is highly unlikely to occur – a student of statistics can very quickly tell us the chances of randomly producing any particular string. Each position has a 1 in 26 chance of having any particular letter of the alphabet, if every letter is equally likely to appear. All of these probabilities must be multiplied together to get the probability of the entire specific string. So, MNBVCXZASDFGHJKLPOIUYTR fulfills the first part of the criterion – it is of vanishingly small probability (one chance in 26 raised to the 23<sup>rd</sup> power, or about one in 1,000,000,000,000,000,000,000,000). However, EVERY such string of letters that make up apparent gibberish is equally unlikely, and most people would look at such a string and conclude that it was random. On the other hand, if the string of letters were METHINKSITISLIKEAWEASEL, we would have a highly unlikely order of letters, as before, but with the added second criterion – this letter order is “specified”, that is, the order matches a recognizable pattern. There is no one who reads the English language who, seeing such a string, would say that the sequence occurred randomly. They would know that someone familiar with Shakespeare had arranged them in that particular order.

This particular phrase was not chosen at random by Dembski. It is used by Richard Dawkins in *The Blind Watchmaker* to illustrate his contention that achieving such specified complexity is not so difficult as the Intelligent Design theorists say. In Darwin's Black Box, Michael Behe tells us that today's scientists are like detectives carefully investigating a room, observing and measuring, as they try to account for the death of a crushed and flattened body on the floor. Their textbook, “*Everything You Need To Know To Be A Detective*” says that detectives “always get their man”, so they are looking for a man, and totally ignoring the large gray elephant standing in the corner. Since science textbooks teach that the physical laws of the universe, chance events, and natural selection are sufficient to account for life and its variety, scientists are totally ignoring the “elephant” of intelligent design, standing in the corner. One of Richard Dawkins' little stories in *The Blind Watchmaker*, is a perfect illustration of Behe's accusation. Dawkins tells us that it is obvious that a random process will never assemble a protein, any more than a monkey hitting at the typewriter keys will come up with the words of Shakespeare. BUT, he says, natural selection is the key to solving the problem. If a monkey sits and types at a computer keyboard; and if there is a string of letters on the screen (QWERTYUIOPLKFDSAZXCVBNM); and if there is a “target phrase” of “METHINKSITISLIKEAWEASEL”; and if, every time the monkey types a string of letters in which one of the letters corresponds to the “correct” one at that particular position in the target phrase, the result of that keystroke is “selected” and saved; then, it would take a relatively short time to achieve the desired phrase.

Of course, Dawkins is correct, as far as he goes. But, he is ignoring the “elephant” in his zeal to solve the problem by naturalistic means. First, the very concept of a “target phrase” is ruled out by

the Darwinian view. The title of his book is "*The Blind Watchmaker*", and in its very first chapter, he assures us that Darwinism involves no planning, no knowledge of the future, and no design. But, in his analogy, each letter typed by the monkey is scrutinized in terms of a phrase that the computer programmer had in mind, and that was programmed into the computer's memory. In nature according to Dawkins, there is no "programmer", and thus, no way to "think ahead" to some irreducibly complex improvement at which we would like to arrive. Secondly, Darwinism requires that each change be selected solely on the basis of its present-day value for survival. In the analogy, there is no more meaning in MWERTYUIOPLKJHGFDSAVBNL than there is in the original string, although two of the 23 positions (1 and 23) now have the correct letters. If the string of letters were required to be functional at communicating the message, neither of these strings would have an advantage, since unless the reader already had the target phrase in mind (something specifically denied to natural selection), there would be no way of knowing which string was "better"; that is, closer to "METHINKSITISLIKEAWEASEL." Because of his commitment to materialism, Dawkins is unable to see the "elephant" of intelligent design gazing at him from the pages of his own book.

The heart of Dembski's insight is found on page 134, in the "explanatory filter" he has devised for detecting, or rejecting, design. The phenomena we see on a daily basis can be separated into three categories. The first of these is "necessity"; what happens is the result of some law that determined the outcome. This means that events can be predicted ahead of time, because they happen the same way whenever the original conditions are the same. Dropping a book on one's foot is a good example of the result of "necessity", or law. Second, something may be due to chance...the result of random occurrences over which no one has any control, and which might turn out very differently if the experiment were run again. Encountering a good friend exactly at lunch-time, outside the door of a new restaurant that neither of you had planned to eat at that day, is an example of a chance occurrence. Finally, there is design. Events are assigned to the "design" category only when we are unable to put them into the other categories. If you go to your regular lunch-time spot on your birthday, and as you walk in you notice that most of your co-workers are sitting at various tables around the restaurant, you will be excused for thinking that this is not a chance occurrence. Of course, it is possible that they all just happened to pick this day to eat at the place you are known to go for lunch every day, but it is not very probable. It is much more likely that at some point, "Happy Birthday to You" is going to break out, and there will be a cake with ice cream placed at your table, with everyone congratulating you on your 40<sup>th</sup> birthday! In other words, their presence in the restaurant is not the result of law, or of chance, but of design.

Some critics have raised the possibility of unlikely coincidences fooling us into thinking (falsely) that design is present. Dembski refutes this objection using the (historical) example of the Shoemaker-Levy comet, that apparently impacted the planet of Jupiter exactly 25 years, to the day, after the Apollo 11 moon landing. Although some might think that such startling correlations/coincidences must be attributed to design, the complexity-specification criterion is sufficiently robust to resist this problem. The key is to set the probability that triggers a judgment of design sufficiently high. Dembski writes that if we allow the moon landing to be a specification for the comet crashing into Jupiter (a real stretch of the imagination, in itself); and then if we assume that the comet could have crashed at any time within a calendar year; and if finally we assume that the "comet crash" came at the same time, to the very second, as the moon landing 25 years earlier, the probability of this exact occurrence is about 1 in 100,000,000 ( $10^{-8}$ ). This is



of Scripture? For me, it comes down to the central doctrine of the Christian faith – the Story of Redemption. Anything, clearly taught in Scripture, that is essential to a coherent and convincing Story of Redemption, I take literally, regardless of the current state of the scientific evidence.

It is essential that we keep in mind, and share with our students, an important truth: there is no story about origins, including Darwinism, without significant scientific problems. Many origins scenarios also pose serious theological questions. At some point, we all have to choose what to believe for ourselves. I have chosen the story that makes the most spiritual sense to me, and for the time being, I just have to live with the scientific questions it raises. Intelligent Design has already made this part of my life a lot easier, and I see even more promise for the future.

If there are students who are shocked by my “unscientific attitude”, I ask them what they think Richard Lewontin, or Stephen Jay Gould, or Richard Dawkins would say (or would have said, in some cases) about their belief in the spontaneous generation of life.... Every materialist testifies to his faith in spontaneous generation whenever the subject comes up – despite the fact that all of the experiments to show how it might have happened have been failures, even with the substantial “cheating” that was done in setting them up, as clearly exposed in Thaxton’s book, *The Mystery of Life’s Origin*. The reason for their abandonment of empiricism, and the resort to faith, in the matter of life’s origin is easy to find. *Whenever* someone (whether they are creationist or evolutionist is immaterial) is faced with data and an interpretation that flatly contradicts her worldview, she falls back on faith. This is not a “religious” tendency, it is a “human” tendency. We need to make this clear (using examples as often as possible) to our students again and again and again. It is like an “inoculation” against the abandonment of their faith in the face of the daily assault that is being made against it.

Finally, it is distressingly common to find Seventh-day Adventist teachers with a genuine disinclination to affirm a literal, seven-day creation as described in the Bible. This is not, in my opinion, a praiseworthy “scientific attitude” in an SDA teacher. Every materialist professor, wherever he is teaching, will testify proudly to his faith in the spontaneous generation of life, regardless of the state of the evidence, because it is an integral part of his world-view. If a professor believes that “In six days, God created the heavens and the earth, the sea and all that in them is”, as the Bible reports, then he should be willing and eager to say so to his students, to explain the reasons for his belief, and to share the scientific evidence that is consistent with the Bible story, along with the challenges and how he deals with them. Anything less abandons students to the culture around them, and this will surely undermine the mission of the church that the pioneers had in mind when our schools and colleges were set up in the first place; the mission for which our church and its members continue to spend so much human and financial capital.

Addendum: There is a wonderful website with numerous articles about Intelligent Design (these can be downloaded – the handout is from this website), a subscription offer for the journal *Origins and Design*, and a list of books, audio and video tapes, and study kits about Intelligent Design. All these products can be ordered, using a credit card, from the site’s secure server. In addition, there is a list of related websites, and a discussion forum which one can read, or even join in to ask questions or to make a point. All of this can be found at: [www.arn.org](http://www.arn.org).



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