

# INTELLIGENT DESIGN; A CHALLENGE TO EVOLUTION OR THE EVOLUTION OF A CHALLENGE?

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A basic tenant of science is that all conclusions in science are tentative pending additional information to the contrary. In other words, scientists seek to view and explain the natural world through the lens of science. However, as our scientific knowledge expands and the lens through which we view the world provides us with better insights into the natural world, science is able to modify previous conclusions and theory to incorporate this new knowledge. Science is the antithesis of the proverbial ostrich that sticks its head in the sand and rejects new information. Science is not a static body of knowledge but rather science is a dynamic form of inquiry that constantly changes in both its breadth and process.

It is this dynamic aspect of scientific knowledge upon which science thrives. However, to a lay person, science may be perceived as a process by which scientific edifices are constructed and worshiped, never to be challenged. In other words, once a hypothesis is proposed or a theory formulated; case closed. However, in practice, the opposite is true. In science, fame is achieved and careers are established by challenging accepted scientific thought and not by merely providing additional conformational evidence of accepted theory. The scientific careers of Stephen Jay Gould and Niles Eldredge were catapulted into the scientific and public limelight by challenging Darwin's principle of gradualism with their punctuated equilibrium principle (Eldredge & Gould, 1972). Challenges from scientists such as Copernicus, Alfred Wegener, Stephen Hawking and Carl Sagan have challenged the way we look at the world and they have had tremendous influence on both the breadth and process of the field of science.

Challenges to contemporary scientific thought result in either additional conformational evidence to substantiate current theory or may result in initiating new avenues of inquiry to explain the natural phenomenon in question. In each scenario, science progresses and our knowledge of how our natural world operates, expands.

If the body of scientific knowledge expands when challenged, should scientists and science educators be

open to scientific challenges to contemporary scientific thought? Should the scientific and educational community not only tolerate challenges but advocate such inquiry? The answer is unequivocally, yes. However the caveat to this affirmation is that these challenges be scientifically-based and that they offer scientific alternatives to contemporary scientific explanations.

Scientific explanations of our world must explain what is observed with reference to natural law e.g., the laws of physics, chemistry, geology, biology, etc. (U.S. Law Week, 1982; National Academy of Sciences, 1998; Forbes, 2003, 2005). Explanations of our natural world that incorporate supernatural or "unknown influences", "intelligence" or "energy" to explain nature are not scientific and therefore fall outside the realm of both the scope of science and the science classroom. Such non-scientific explanations may be better addressed by one of the many other valuable forms of human inquiry such as philosophy or theology.

## THE FALLACY OF FALSE ALTERNATIVES

One of the basic errors in deductive reasoning is referred to as the "fallacy of false alternatives". In this manner of "reasoning" it is erroneously concluded that if a given phenomenon cannot be explained by option "A" therefore the correct explanation must be option "B". This reasoning is erroneous as it fails to take into account that options not yet offered e.g., options "C through Z", may represent the best explanation for the phenomenon or that some combination of the options may provide the best explanation e.g., options "C, E & Z". This reasoning also fails to take into account the very realistic option of "none of the above"; that all of the possible explanations are invalid.

In the public arena, this "fallacy of false alternatives" is commonly found in the evolution education and creationism or intelligent design debate. The assertion is commonly made that if evolutionary biology cannot explain a natural process or event then the only possible explanation is supernatural; a deity or an intel-

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ligent designer. Such reasoning is the embodiment of the fallacy of false alternatives.

Not only is this reasoning inappropriate logically and deductively, it is without substantiation. In the past, science was unable to explain rainbows, earthquakes, lightening and seasons. Many primitive cultures assigned deities to these natural events. Once science was able to explain these phenomena, supernatural explanations were now longer endorsed or accepted.

The lesson learned is that just because science can't explain a phenomenon today, doesn't mean that science won't be able to explain it in the future. However there is a caveat; just because science can't explain it today doesn't necessarily mean that it will be able to do so in the future. Science cannot address all questions including "ultimate-type" questions such as "Is there life after death?" Students of science and the public must realize that if science is currently unable to provide an explanation for a phenomenon that the explanation does not necessarily default to supernatural causation.

### **WHAT IS INTELLIGENT DESIGN CREATIONISM?**

Ever since Charles Darwin and Alfred Russel Wallace (Darwin and Wallace, 1858) first introduced the world to the evolution of life forms by the means of natural selection, debate has focused upon the perceived challenge to one's faith by the theory of evolution. This debate has focused itself once again upon the public school classroom where proponents advocate that "alternative theories to evolution" be taught. The candidate usually proposed for such "alternatives" is intelligent design creationism albeit the term creationism is usually omitted from the moniker by its proponents as to avoid challenging the Establishment Clause of the first amendment of the U.S. Constitution.

The basic tenant of intelligent design (ID) is that some biological structures (e.g., the vertebrate eye, the bacterial flagellum, bird's wings) or some biological processes (e.g., blood clotting mechanisms, cellular replication) are too complex to have been produced by natural processes (natural selection) alone; therefore, these structures must have been "intelligently designed". Although some ID supporters will accept that to be intelligently designed, there must be an intelligent "designer", this represents a challenge to the Establish-

ment Clause of the Constitution and therefore, strategically, most ID advocates cautiously avoid such obvious extensions of their claim. Their hope may be that the general public also fails to make this connection.

The most noteworthy contemporary proponents of ID are William Dembski (1999) Philip Johnson (1991) and Michael Behe (1996). Although Dembski, Johnson and Behe provide cotemporary arguments for the ID case, the basic tenants of ID were championed under the banner of "natural theology" by William Paley (1743-1805) in his 1802 book of the same name (Paley, 1802). However even Paley's work was preceded in 1691 by John Ray (1627-1705) who is credited as both the father of natural history in Britain as well as the founder of the natural theology school of thought. In other words, the ID argument is not new; it has been with us for over three centuries. All that has changed are its name, its proponents and its arguments.

As space does not allow for a detailed philosophical and scientific analysis of ID, the reader is referred to a work edited by Pennock (2001), which represents the most comprehensive and detailed work to date dealing with both perspectives of this issue. Pennock includes original papers from both the scientific community of those of ID proponents.

### **IS INTELLIGENT DESIGN REALLY AN ALTERNATIVE SCIENTIFIC THEORY TO EVOLUTION?**

While the works cited above address a variety the philosophical, theological and scientific problems associated with ID, there are even more obvious concerns that arise when it is suggested that ID be presented in a science classroom as an "alternative theory" to the theory of evolution.

1. Theories are "...in science, well-substantiated explanations of some aspect of the natural world that can incorporate tested facts, laws, inferences and tested hypotheses" (National Academy of Sciences, 1998). Intelligent design "theory" is an inappropriate moniker as the basic tenant of ID is one of a fallacy of false alternatives (presented above). That is, if science cannot yet explain the evolution of a given structure or process, then by default, supernatural processes (ID) must be responsible. However, ID proponents provide no testable hypotheses to substantiate their claims nor

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do they provide any model that meets the stringent criteria of scientific theory (Forbes, 2003).

Therefore, calling the ID creationism a theory, is inappropriate as it does not begin to approach the robustness of scientific theory but rather conjures up images of one of Rudyard Kipling's "Just So Stories".

Science is based upon empiricism. If a hypothesis or "theory" cannot be tested, then it falls outside the purview of science and should be treated by philosophers or theologians. This is the case with ID. Cloaking ID in the language of science by using "theory" does not make it scientific; science has higher standards than mere assertion.

Before a topic can be introduced into the science classroom, it must pass the strict standards of scientific empiricism. ID proponents advocate introducing ID into the classroom first and letting their "science" provide validation in the future; the horse before the cart. As the father of scientific investigation, Sir Francis Bacon (1561-1626), stated so eloquently almost four centuries ago, "*Books must follow sciences, and not sciences books*".

2. It is commonly suggested that "...it would be only fair to present both sides and then let the students decide which they believe (evolution or ID)".

The problem with this suggestion is multifold. Firstly, one does not "believe" in evolutionary theory, as it is not a faith-based ideology. One either accepts or rejects the empirical validity of the science. Secondly, this strategy establishes a false dichotomy in which the student is being asked to "choose" between two options. Few western denominations would even suggest that such an absolute dichotomy actually exists. The vast majority of western denominations make no effort to impede evolution education and most even advocate its inclusion in the science classroom (National Academy Press, 1998; <http://books.nap.edu/books/0309063647/html/123.html> <http://www.ncseweb.org/article.asp?category=2>)

Thirdly, offering ID to our students as a viable scientific alternative to evolutionary theory is intel-

lectually dishonest as ID does not meet the standards of theory let alone the standards of science (Forbes, 2003, 2005). We would be asking our students to choose between a scientific theory and a philosophical or theological postulate; options that have no place in the science classroom. The analogy would be to ask our students to choose between neurology and reflexology or between astronomy or astrology. Scientific choices can only be made when scientific choices exist.

3. It has been suggested by some individuals that local school boards and local science teachers should determine the merits of evolutionary theory and then decide upon its role in their curriculum. In science, it is the research professionals working in their respective fields that determine the appropriate scholarship for their field. These scientists utilize their expertise and scientific experience to evaluate scientific theory. In science, it has been determined that evolution, and only evolution, is the best scientific explanation of the natural world. Allowing school boards and local science staff (lacking advanced research experience in evolutionary biology) to evaluate the validity of evolutionary theory is as inappropriate as allowing evolutionary scientists to run the Federal Reserve. In science, scholarship is determined by those active in their research field.

### SCIENCE IN THE SCIENCE CLASSROOM

Although intelligent design creationism is commonly presented as a new scientific challenge to the theory of evolution, it actually represents the evolution of an old theological challenge; the natural theology of Paley (1802) and Ray (1691).

ID has as its basic tenant, a fallacy of false alternatives (see above); that those biological structures and processes that science has not been able to adequately explain must be the result of a supernatural intelligent design force or agent (designer). What ID proponents fail to recognize is that *currently unexplained does not mean always inexplicable*. Science is dynamic and answers may be on the horizon for those questions that remain unanswered. By the very nature of science, there will always be questions that remain unanswered because in the process of answering a question or solv-

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ing a problem, more questions arise. This is the very nature and an eloquent and admirable quality of science. New questions will always be formulated.

If ID proponents ever expect to have their ideas presented in the science classroom, they must first submit testable hypotheses to the scientific community for evaluation and validation. It is this strict empiricism upon which science is based. The scientific community welcomes scientific challenges as intellectual challenge is how science advances. The challenge to those advocating the inclusion of ID in the science curricula is to provide scientific validation for their model.

In conclusion, I offer a contemporary version of Francis Bacon's quote (cited above) for those promoting the inclusion ID in science curricula. "*Scientific validation must proceed what is taught in the science classroom; we do not teach as science what we hope will be validated in the future*". The cart remains ahead of the ID horse.

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