

## EVOLUTION VS. IDEOLOGY

### Why Intelligent Design Just Won't Do

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Recent praise of the doctrine known as "intelligent design" as a candidate for inclusion in the public school science curriculum raises philosophical questions about the nature of science that I deal with in my courses on science and pseudoscience. The issue is less the nature of religion than it is the nature of science. Intelligent design is not science and therefore does not belong in the science curriculum. But it might nevertheless serve an important function in distinguishing "science" from "non-science".

The aim of science is the discovery of what are known as laws of nature, including the laws of physics, the laws of chemistry, and the laws of biology. These laws are the basis for scientific explanations and predictions. If water freezes at 32 degrees Fahrenheit, that provides a premise for predicting that, when water reaches that temperature, it will freeze, and when it does freeze, together with information that the temperature hit 32 degrees, can explain why. Laws are the core of science.

The complexity of the human eye invites explanation on the basis of laws of biology together with information about the specific conditions that have occurred during the course of history. These laws include a set of at least eight causal mechanisms--not only genetic mutation and natural selection but genetic drift, sexual reproduction, sexual selection, group selection, artificial selection, and genetic engineering. Four enhance genetic diversity and four determine which genes are perpetuated through time.

Suppose, for example, a kind of black algae had acquired land motility and a single light-sensitive cell. If that sensitivity was adaptively advantageous, it is rather easy to imagine that mutations of more light-sensitive cells in various formations could rapidly evolve as the effect of natural selection. Over millions of years, the result might look like the product of intelligent design, but it would be the outcome of purely causal processes. Indeed, the point of evolutionary theory is to explain phenomena without having to appeal to intelligence or divine design.

Theories of evolution resort to different combinations of these mechanisms, where accounting for the evolution of species appears to require invoking them all. That the human species has evolved from earlier species becomes apparent from the discovery of our ancestors, including Australopithecus, Java Man, Peking Man, Neanderthal Man, and Cro-Magnon Man. None of them was as well adapted to the environment as Homo sapiens. Only evolution has the capacity to account for them. God explains nothing.

Moreover, it turns out that we share some 98% of our

genes with chimpanzees. This does not guarantee that we are genetically related, but it is powerful evidence that points in that direction. Small differences in genes can make considerable differences in their manifestations, due to the influence of pleiotropic and polygenic effects, where single genes affect multiple traits or combinations of genes affect single traits. How do DNA and skeletal similarities between species, for example, figure in the grand design? Doesn't all of this suggest the operation of the causal mechanisms of evolution of long duration?

Morphological similarities, DNA comparisons, the fossil record and geological evidence all support the general conception of an earth that is around 5 billion years old, where life emerged around 600 million years ago and hominid life around 5 million years ago. Appeals to an unknowable source using unspecified means does nothing to fill any gaps in our knowledge. It merely substitutes pretense for what we don't know, ignorance that in the past has commonly proven to be temporary.

For the theory of an intelligent designer to be taken seriously as a scientific theory rather than merely a guess or conjecture, it must have predictive as well as explanatory significance. Without knowledge of the causal mechanisms used by the intelligent designer, it is not a testable theory. What are the laws that were involved? With knowledge of the causal mechanisms used by the intelligent designer, however, there is no need to invoke the designer itself. Either way, there is no place in science for the intelligent designer hypothesis.

Indeed, "intelligent design" is old wine in new bottles as the latest incarnation of what is classically known as "the argument from design". It was subjected to a devastating critique by David Hume in the 18th century. A finite and flawed Earth suggests a finite and flawed creator. Who knows how many prototypes might have gone before and been discarded? Who knows whether the one we inhabit might even be among them? Who knows how many gods or goddesses might have been involved? Who knows how any of this could possibly have been done?

The Catholic Church reconciles science and religion by adopting the position that God created the world and various forms of life using evolution. The mechanisms of evolution thus provide an answer to the questions I have raised. If they are adequate to explain and to predict the course of evolution relative to information about specific events during the world's history, then those laws belong in the science curriculum. But not the appeal to God, an hypothesis that is not required.

In the absence of specification of the causal mechanisms and laws by which intelligent design is supposed to take place, it cannot qualify as science. But it might still be used in the biology curriculum to explain the major

differences between science and non-science. Religious beliefs as articles of faith do not have to satisfy the standards of explanatory power and empirical testability that scientific hypotheses must meet. Our students can benefit from understanding the distinction between them. But we should not substitute ideology for evolution.

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