# Is Evolution a Good Theory?

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As a theorist who uses quantum mechanics to solve problems ranging from biochemistry to astrophysics, the subject of this essay is of great interest to me. It is a question that is discussed in depth in my University of Georgia freshman seminar entitled "Science and Christianity: Conflict or Coherence?" This autumn eighteen gifted UGA students and I are spending six weeks examining Stephen Hawking's best-selling book "A Brief History of Time. " Therein Hawking states "A theory is a good theory if it satisfies two requirements. It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements. And it must make definite predictions about the results of future observations." I consider Hawking's statement to be an excellent definition of a good theory. How does evolution stack up to the two demands of a good theory? By the term "evolution," I mean the claim that random mutations and natural selection can fully account for the complexity of life, and particularly macroscopic living things.

I think that the standard evolutionary model does a good job of categorizing and systematizing the fossil record . It serves as an effective umbrella or big tent under which to collect a large number of observations. If evolution has a weakness in this regard, it is that the tent is too big. Thus the 20th century witnessed a series of hoaxes, beginning in 1908 with Piltdown Man and continuing to recent fabricated fossil "discoveries" in China, that have been embraced as missing links by distinguished paleontologists. Nevertheless, I give evolution a B grade with respect to Hawking's first category. The second requirement for a good theory is far more problematical for the standard evolutionary model, sometimes called the modern synthesis. Over the past 150 years evolutionary theorists have made countless predictions about fossil specimens to be observed in the future. Unfortunately for these seers, many new fossils have been discovered, and the interesting ones almost always seem to be contrary to the "best" predictions. This is sometimes true even when the predictions are rather vague, as seen by the continuing controversies associated with the purported relationships between dinosaurs and birds.

Is the expectation that a good theory be predictive unrealistic? Let us consider two theories to which evolution is often favorably compared. The theory of gravity precisely predicted the appearances of Halley's comet in 1910 and 1986. On the latter occasion I was on sabbatical from Berkeley at the University of Canterbury in Christchurch, New Zealand. The newspaper (informed by classical mechanics and the law of gravity) told me exactly when I had to wake up in the middle of the night to enjoy the wonder of Halley's Comet. And in fact, the theory of gravity never fails for the macrosopic objects to which it is applicable. A second successful theory, the atomic theory, is grounded in Schroedinger's Equation and the Dirac Equation. Atomic theory is able to make many predictions of the spectra of the hydrogen molecule and the helium atom to more significant figures that may be currently measured in the laboratory. We are utterly confident that these predictions will be confirmed by future experiments. By any reasonable standard the theory of gravity and the atomic theory are good theories, well deserving of A grades. In comparison with these quantitative theories of the physical sciences, when it comes to Hawking's second requirement for a good theory, the standard evolutionary model fails, and should be given a D grade at best.

Might I be more detailed in stating my reservations concerning the standard evolutionary model? Sure. Let me preface these brief remarks by noting that I think the scientific evidence that God created the universe 13-15 billion years ago is good. My first concern is that, with the collapse of the Miller-Urey model, there is no plausible scientific mechanism for the origin of life, i.e., the appearance of the first self-replicating biochemical system. The staggeringly high information content of the simplest living thing is not readily explained by evolutionists. Second, the time frame for speciation events seems all wrong to me. The major feature of the fossil record is stasis, long periods in which new species do not appear. When new developments occur, they come rapidly, not gradually. My third area of reservation is that I find no satisfactory mechanism for macroevolutionary changes. Analogies between a few inches of change in the beaks of a Galapagos finch species and a purported transition from dinosaur to bird (or vice versa) appear to me inappropriate.