

Evolution – What Are the Chances?

by Chuck May

- Could all life have arisen by chance alone?
- What do scientists believe about the statistical probability of evolution?
- Stastically, is macroevolution more reasonable than creationism?

The theory of macroevolution (hereafter, "evolution") entails the belief that all life began, when, by chance, individual atoms combined to form molecules. These molecules eventually combined to form more complex structures, which over eons of time combined further to form single-celled living organisms. From these single-celled creatures, all plant and animal life evolved. For the naturalist (one who denies a supernatural being—"god"), this entire process occurred by chance. No person guided the process—it occurred randomly. Time + matter + chance gave rise to life.

The purpose of this brochure is to summarize what scientists themselves are saying about the probability that evolution occurred through purely random acts. What follows are quotes from experts in various scientific fields. I have quoted several non-Christian scientists who have no predisposition to believe creationism.

So, What Are the Chances?

According to evolutionists, the first stage in life's origin was the chemical buildup of the basic organic compounds necessary for living cells. This, presumably, occurred in the early oceans on Earth, where under specialized conditions these compounds formed into proteins, the building blocks of life. These early nutrient rich oceans are referred to by scientists as the "pre-biotic soup." In this soup, over millions of years, these proteins combined billions of times at random until eventually macromolecules occurred which had the power of self-reproduction. Then, driven by natural selection, evermore efficient and complex self-reproducing molecules evolved until finally a single-celled living organism emerged.

Despite the fact that there is no evidence that such a "soup" ever existed (Denton, "Evolution, a Theory in Crisis," p. 260), many continue to believe that this is how life began. So what are the chances of such a scenario? According to Dr. Wickramasinghe (a Buddhist), Chairman of the Department of Applied Mathematics and Astronomy at the University College in Cardiff Wales, "Little in the way of biological evolution could have happened. ... If one counts the number of trial assemblies of amino acids that are needed to give rise to enzymes, the probability of their discovery by random shufflings turns out to be less than one in 10 to the 40 thousand." This means that, to get just one enzyme, it would take more attempts than there are atoms in all the galaxies of the entire universe.

Molecules are so small that a 1/4 teaspoon of water has 10^{24} of them. (That's the number 10 multiplied by itself 24 times). A single drop of blood has 35,000,000 red blood cells. Each red blood cell has 280,000,000 hemoglobin molecules, each having 10,000 atoms. Each person has 27 trillion red blood cells (27 x 10^{12} [notice that "trillion" is 10 to the 12^{th} power]).

Noted scientist Sir Fred Hoyle gave an illustration of achieving a biopolymer (such as hemoglobin) by random chance. "Imagine 10⁵⁰ blind people, each with a scrambled Rubik's cube. Try to conceive of them all solving the cube at the exact same moment. You now have the chance of arriving, by random shufflings, at just one of the biopolymers on which life depends. The notion that not only biopolymers, but a living cell, could be arrived at by chance is nonsense of a high order" (Hoyle, "New Scientist," 92, Nov. 1981).

DeNouy provides an illustration for arriving at a single molecule through chance action. "Assume 500 trillion shakings *per second* plus a liquid material volume equal to the size of the earth. For one molecule, it would require 10²⁴³ billions of years" (Shute, "Flaws of the Theory of Evolution," pp. 23-24). And this is for only **one** molecule, not the millions that are required (in proper sequence) for life to exist.

Harold Morowitz, a Yale university scientist, calculated the odds of a single bacterium arising from basic chemicals by random forces. He concluded that the chances of such an event were 1 in $10^{100,000,000,000}$ (cited in Mark Eastman, Chuck Missler, "The Creator Beyond Time and Space," Costa Mesa, CA: TWFT, 1996, p. 61). This number is so large that it would take 100,000 average-sized books, filling every page with numbers, just to write it out.

These numbers are unimaginable, but let's try to compare it to a modern situation. Assume that the chances of winning the state lottery are 1 in ten million. The odds of winning each successive week involves multiplication of probabilities, so that the odds of winning every week for 80 years in a row is 1 chance in $4.6 \times 10^{29,120}$. In other words, it is far (almost infinitely) more likely that you would win the lottery every week for 80 straight years than it is that a single bacterium arose by pure chance.

"The chance that higher life forms might have emerged (through evolutionary processes) is comparable with the chance that a tornado sweeping through a junk yard might assemble a Boeing 747 from the material therein" (Sir Fred Hoyle, "Hoyle on Evolution," *Nature*, Vol. 294, November 1981).

Fine Tuning—the Opposite of Chance

The tenets of evolution and naturalism do not stop with the origin of biological life. If there is no God to order biological life, then there is no God to direct any of the order we see in the non-living material in the universe either. But can chance alone really account for the incredible complexity we see on the earth and in the cosmos?

For years, scientists have discussed the "anthropic principle." This principle states that the entire universe seems "designed" for the sake of human life of Earth. Human life requires physical constants, laws, and properties that fall within certain narrow ranges. And this is true not only for the planet Earth but also for our solar system, our galaxy, and the entire universe. For example,

- In individual atoms, the ratio of the gravitational force constant to the electromagnetic force constant cannot differ from its value by any more than one part in 10⁴⁰ (one part in ten thousand trillion trillion trillion) without eliminating the possibility for life.
- If the Earth were 2% closer or farther away from the sun, no life would be possible.
- If the axial tilt of the Earth were any different, then surface temperatures on the Earth would be too hot to support life.
- If the Earth rotated any slower than it does, then day-night temperature differences would be too great. If it rotated any faster, then wind velocities would be too great.
- Oxygen comprises 21% of the earth's atmosphere. If it were 15%, then humans would suffocate. If it were 25%, then spontaneous fires would break out.

- By 2001, scientists had identified 150 physical constants which have to be "fine tuned" to allow for life's existence (and these constants have to be in the right ratio to each other).
- The odds that any given planet in the universe would possess the necessary conditions to support intelligent life are calculated at 1 in 10^{173} .

(Statistics are taken from Rood and Treffil, "Are We Alone—The Possibility of Extra-Terrestrial Civilizations"; Barro and Tippler, "The Antrhropic Cosmological Principle"; M. Denton, "Nature's Destiny"; Ross, "Probability for a Life Support Body"; and many other scientific works.)

Support for the anthropic principle is found in many books. The authors of these books range in religious beliefs from agnosticism to deism to theism, but they all agree that the universe exhibits exquisite fine-tuning for life. "We can draw the conclusion that fewer than a trillionth of a trillionth of a percent of all stars could be capable of sustaining advanced life. Considering that the observable universe contains less than a trillion galaxies, each averaging a hundred billion stars, we can see that not even one planet would be expected, by natural processes alone, to possess the necessary conditions to sustain life" (Ross, "The Creator and the Cosmos," p. 133).

In light of the foregoing scientific evidence, it seems infinitely more rational to believe that the universe did not come about through random processes. Life and the universe we know are the direct result of the creative activities of an infinitely wise, powerful, and creative Being, who we call "God."

I end with two quotes from two scientists who, to my knowledge, are nor Bible-believing Christians:

"It is the sheer universality of perfection, the fact that everywhere we look, to whatever depth we look, we find an elegance and an ingenuity of an absolutely transcending quality, which so mitigates against the idea of chance. Is it really credible that random processes could have constructed a reality, the smallest element of which—a functional protein or a gene—is complex beyond our own creative capacities, a reality which is the very antithesis of chance, which excels in every sense anything perused by the intelligence of man? Alongside the level of ingenuity and complexity exhibited by the molecular machinery of life, even our most advanced artifacts appear clumsy. We feel humbled, as neolithic man would in the presence of twentieth century technology" (Denton, "Evolution—A Theory in Crisis," p. 342).

"For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries" (R. Jastrow, "God and the Astronomers," p. 116).

Questions and Answers

Q: Could all life have arisen by chance alone?

A: The odds against life arising by chance alone are statistically overwhelming.

Q: What do scientists believe about the statistical probability of evolution?

A: Many well-respected non-Christian scientists believe that it is impossible that life arose by chance alone.

Q: *Statistically, is evolution more reasonable than creationism?*

A: No, it is not even close. To believe that evolution occurred by chance alone requires faith of unprecedented proportions.