

(Comments of Wallace M. LeStourgeon, Professor of Molecular Biology)

I am one of many biologists that fear someday nonscientists and politicians will tell us what science really “is” and exactly how science should be taught. This possibility sometimes causes me to get a bit emotional and I hope I have your forgiveness in advance. Being in the cross hairs of the so-called “Intelligent Design” controversy can put one in a bit of a defensive position today.

I will start with my conclusion. It is the same conclusion that Pope John Paul proclaimed some 10 years ago. Namely, that randomness followed by selection (the core mechanisms of evolution) is the best argument for an intelligent designer. And, I find it unfortunate that so many people today do not have enough information to understand this point. It is truly an ingenious system. However, I am careful not to claim that this system is the best “evidence” for an “Intelligent Designer.”[1]

To help make this point in a brief period of time, I’ll start by describing the day that fear might come true. In this scenario, I am half-way through the semester teaching a class of 60 students Advanced Molecular Genetics. These are bright young women and men who have studied the sciences for many years. They someday hope to use evolutionary principles to defend us from pandemics and possibly to develop new genomic therapies for diseases we can not treat today.

Imagine on this day I say, “OK students, today we are going to learn the TRUTH. We hear a lot about the truth today. First, you must forget what you have learned in Physics and in Chemistry.

You must forget what you have learned in Geology and about Plate Tectonics. You must forget what you know about the fossil record and even Astronomy. You must forget all you have learned in Biology, Biochemistry, and yes – especially Genetics.”

“The TRUTH is this: Everyone in this room and everyone on the face of the Earth today can trace their ancestry to a man named NOAH. And according to some of the people who claim to know about Noah, he lived about 4 thousand years ago.”

“So, students, what we know about genetic diversity today in humans must be some kind of mean trick because NOAH’S children’s children would have had to mate among themselves for generation after generation after generation. Yes, I know, this is inconsistent with the existence of the Chinese, and the Africans, and Europeans, and Aborigines. But, the TRUTH is the TRUTH.”

So, my predicament as a biologist is that if limited to this TRUTH, I might as well teach that the earth is flat.

As a biologist, when I hear a person talk about “Intelligent Design” my first thought is how little they know about the molecular mechanisms of life. Let’s have a look at a few examples.

We won't worry about seeming mistakes like male nipples, or a little thing called an appendix, or that our lower backs are not well designed to support our thoracic weight, or that, like other mammals, our internal organs are suspended from our backs.

Rather, let me tell you an interesting story about the piloerector muscle.

Every hair on our body has a small muscle attached just under the skin. It is called the piloerector muscle. Each Piloerector muscle is innervated by a neuron from the sympathetic nervous system.

If I place a mouse or a chimpanzee outside when it is freezing, their hair will fluff up and they will not freeze to death. That is the piloerector muscles at work. Well, the same thing happens if I stand out in the cold. Every hair on my arm will stand up and I will see Goose bumps caused by contraction of the piloerector muscles. But, I can assure you, I am not warmed by the hair standing up on my arm and I will freeze to death.

Does that sound like an intelligently designed system? It just doesn't work. Think of all the wasted genes, wasted enzymes, wasted muscle energy, wasted nerves, just a total waste.

But, as evolutionary theory predicted long ago, as generations pass through time, we retain our ancestral genes. In other words, the major mechanism of evolutionary change is gene over duplication followed by divergence. This is now confirmed in the sequenced genomes of both humans and chimpanzee. In brief, we can look directly at how our genes and the genes of chimpanzees are organized and evolved in our chromosomes

Scientists want evidence, we want facts, and we want to understand the "how" and "why". Without this kind of knowledge there is nothing we can do to design new therapies.

Finally, I would like to give an example of randomness followed by selection at the molecular level. This is another example of an inefficient system that questions the argument that all life is designed by an intelligent creator. This is the kind of thing that puts nonscientists to sleep, I'm afraid. Still, scientists must make an effort to communicate better or, indeed, someone else will tell us what to teach.

The biochemical conversion of lanosterol to cholesterol takes 19 high energy reactions, all of the reactions require enzymes and the entire process consumes massive amounts of energy. But, the end product, cholesterol, only differs from lanosterol by a couple of protons and carbon atoms.

Today, a good organic chemist could convert lanosterol to cholesterol in about 6 reactions. So, not only is it an example of random reactions but it does not seem especially intelligent. There are hundreds of examples of life depending on random events followed by selection. Indeed, DNA replication is totally dependent on this process.

The point is that many millions of years ago animals that could make cholesterol had enhanced survival value and any mutation that inactivates any of these 19 enzymes is lethal. Indeed, this is the mechanism of genomic conservation. Animals that can make cholesterol survive, and those that do not, do not.

So, we see even at the molecular level of life clear examples of randomness-followed-by-selection. It is the true genius of creation. It not only led to the origin of life on this planet but it continues to create today. So, from this biologist's perspective, evolution based on randomness and selection is the best argument today of an "intelligent design".