

Evolving Naturally **Natural Selection without Science**

No, I don't believe in evolution. I simply have no need to believe in it.

Belief and understanding sit on opposite ends of the teeter-totter. Where there is belief, there is no need for understanding. Where there is understanding, there is no need for belief. I understand evolution, so I simply have no reason to believe in it.

No one can deny evolution as a dynamic. We see it acting every day in countless forms. Languages evolve. Cultures evolve. Music evolves. Fashions evolve. Cars evolve. Relationships evolve. Cities evolve. Companies evolve. *Evolution* only means that things move gradually from one form to another, building on what went before with variations being selected so that some persist and others die away. Wherever there is variation and selection, there inevitably is evolution.

Religionists who would like to undermine the theory of evolution offer as an alternative something they call intelligent design. The argument for intelligent design has been put something like this. If you are walking down a beach and suddenly look down and see a clock in the sand, and you pick it up and examine it, you would know just from its design that there was an intelligence behind it. But when I look at a piece of hardware, be it a clock, a car, or a spacecraft, I see at least as much evolution as intelligent design.

Consider your car. No one really invented it. No one really designed it. Your sleek, comfortable, quiet, clean, reliable, safe vehicle is the direct lineal descendent of a boxy, uncomfortable, noisy, dirty, clunky, dangerous contraption of a hundred years ago. Over the course of a century, hundreds of thousands of engineers in generational waves dickered with each little part of it. Narrow, high pressure, inner tube tires slowly morphed into lower pressure cord tires then to radial tires and finally to steel-belted radial tires. Hinged windows became cranked windows became motorized windows. Drum brakes yielded to disc brakes. Manual transmission became automatic. Carburetors became fuel injectors, and fuel injectors acquired sophisticated sensors and controllers with computers to connect them. Bent metal became stamped metal became molded metal became molded composite. Seat belts arrived first, then shoulder harnesses joined them, then interlocks and automatic seatbelts – thank goodness those didn't last! – then airbags, then side curtain air bags. Radios and air conditioning and tape players then disc players became standard equipment, and soon satellite navigation systems will too. Every item you can touch in your car is the result of a century of evolution.

It's not that intelligence didn't participate in the design of the car. Many smart people scowled over every detail of the design, fussing and testing and adjusting to their heart's content. But intelligence wasn't the only designer. Selection had at least as much influence on the design as intelligent choice. Some intelligent design choices never got off the drawing board when a set of abstract equations warned that they wouldn't work as intended. Some just couldn't be built as planned. Some flunked their tests in the lab or the field when the real world contradicted the best intelligence of their designers. Some cost more than the intelligent designer anticipated. And

some intelligent design ideas that made it through the wickets of analysis, manufacture, testing, and cost never gained acceptance from buyers or were rejected in favor of a superior idea.

No intelligent designer made the car what it is today, evolution and selection did. Intelligent designers offered choices, then the pressures of equations, tests, manufacturing realities, cost analyses, and consumer preferences selected which features would survive and propagate, to be adapted and built upon by others. Those features got passed on to the next generation of cars and became the basis for the next round of tinkering. The pressures of selection had far more to do with how today's car looks and performs than the deliberations of an intelligent designer.

What intelligent designers did, however, was accelerate the evolution of the car. Intelligence can purposely inject change rather than waiting for it to occur accidentally. Furthermore, the choices that intelligent designers offered were more likely than random choices to be acceptable; after all, the intelligence that created them was informed by the trials and error of the past. With this font of experience to draw upon, fewer tries are needed to make a lasting advance. But this is all just a matter of pace. Remember that in infinity, everything possible, even things that are highly improbable, *will* come about. If an infinite number of monkeys sat tapping randomly on an infinite number of keyboards, then inevitably, one would randomly type out *Hamlet*, word for word. Short of infinity, not everything possible will happen, but over a very long time, many improbable things will.

Life has been evolving for a very, very long time, with a huge number of generations available for changes. With so many opportunities for small changes, random chance can play the same role in evolution as intelligent choice. Evolution needed two million years of random chance to transform knuckle-walking quadrupeds into upright bipeds but only a hundred year of intelligent choice to make arguably similar progress for a car.

Evolution and selection, both intentional and natural, proliferate a variety of outcomes to fill a variety of niches. In automobiles, we call them *models*. In nature we call these *species*. A convertible sports coupe and an eighteen-wheeled truck have the same lineal ancestry; so do a gazelle and an elephant. They just had different selection pressures. As soon as the environment, economic or natural, opened a niche that could be exploited, the best variation in the basic product to fill that niche started to thrive. Then it became progressively optimized for its role under its unique selection pressures.

Evolution and selection, both intentional and natural, build on what came before. Automobiles evolved from carriages and steam engines. Carriages came from carts and wagons, and so on, back into the misty reaches of history. But what about at the beginning, the very beginning. The primal innovation that got the car's whole evolution, well, rolling was of course the wheel. Just like the primal innovations of life, the precise origins of the wheel are lost to us, but the first evidence of its emergence seems to date it to the early agricultural age. Before we insist that at least the wheel arose from intelligent design and not evolution, we must ponder why humans with the same level of intelligence that we have today would not have designed it one hundred thousand years earlier. Something besides intelligence drove the invention of the wheel. That something was a niche for it to fill. I suspect hunter-gatherers could have made good use of a wheelbarrow-like transport if they had it. What they really lacked to make a wheel practical was

relatively smooth surfaces – roads. Hunter-gatherers moving in chase of their prey would not have smooth paths in the wilderness. Farm people worked in the same areas year after year, walking repeatedly along the same paths until they naturally smoothed and straightened into roads. So the environment had to be right before the car's primal invention could have taken hold, irrespective of when human intelligence was up to the task. So it was also with life. The environment had to be right before the primal inventions of life could come about.

There can be no argument about evolution as a dynamic. Of course it works. The evidence for it is so pervasive that to deny it would be ridiculous. We have even harnessed evolution in computer algorithms that create random changes in themselves then select which of those changes are most useful in meeting some mathematical criteria of goodness. There can be no argument that biological creatures evolve. We see disease bacterial evolving before our eyes as our medicines kill off those not fit to survive in the harsh environment of the antibiotic-laden bloodstream. There can be no argument that evolution based on random change and propelled by natural selection *could have* evolved the creatures we see about us, including us humans. The raw materials, mechanism, and time scale all permit it to happen this way. The only real question is whether it *did*.

The question “Do you believe in evolution?” should really be asked as, “Do you believe that God created the world as we see it a few thousand years ago?” Evolution is not a matter of belief, it's a matter only of understanding. There is abundant evidence that purely natural processes *could* have created the world we know today. But some people need to embrace the literal teachings of religion as a complete, integral, infallible package in order find meaning and direction in their lives. They choose the belief side of the teeter-totter for reasons unconnected with the cold, objective examination of the idea. I cannot. I do not have the gift of faith that would allow me to forgo understanding. On the contrary, every fiber of my nature craves to understand, to know through reason rather than belief. Without the ability to understand the mechanisms of the natural world, life would have no meaning *for me*.

I understand evolution, so I don't believe in it.