

TOWARDS A CREATION "MYTH" FOR HUMANISTS

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Prologue

We need to know about where we came from and how we got here to better see who we are and where we are heading. We humanists need to root our convictions more firmly to gather the strength to deal with a world that has become increasingly cold and hostile.

Holy wars rage in the Khyber Pass and around the Persian Gulf. The faithful are called to prayer from minarets that tower over Baghdad in Iraq and Dearborn in Michigan. The mullahs run Iran. Fanatics take innocent hostages off the street, hijack airplanes, leave bombs in restaurants, and murder innocent citizens.

You can dial a prayer at any time, or work your Sunday around any number of the TV pulpits anchored by high-tech preachers. In the name of God, these holy men censor textbooks, ban novels, coerce school boards, legislate the teaching of biblical creation, ban homosexuals, excoriate secular humanists. Hundreds of thousands watch and pay their money, firmly believing that they are saved for an eternal life in the sky.

Nations continue to take aim at each other's hearts. Leaders at the highest levels endorse cruel and unspeakable punishments of their dissident citizens. At this very moment developers are chopping down the trees in the Amazon Basin. Their efforts eradicate thousands of species every year as habitats are destroyed. Since the world now has fewer trees in one of its wettest places, less moisture is pumped into the air. As a result, global patterns of rainfall are altered forever, less rain will fall in Africa and droughts will continue to kill thousands more by starvation.

Some of the greatest of the classical forests of the world are shriveling, lakes are poisoned, fjords soured, and still the rains continue to carry down acid. Thousands know more about the drivel in the TV series, *Dallas*, than about the many more out in the world who will go blind from vitamin A deficiency.

We humanists have not lit up the sky. Religious fundamentalism has grown stronger than ever. Compassion, justice, and the sense of humanity have gone out of style. Wither Humanism?

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E. O. Wilson, who is an important sociobiologist, has argued for a new order of enlightenment. He has said, "the mental processes of religious belief ... represent programmed predispositions whose self-sufficient components were incorporated into the neural apparatus of the brain by thousands of generations of genetic evolution. As such they are powerful, ineradicable, and at the center of human existence." Wilson then suggests a way out: that scientific Humanism be modified to accommodate modern natural science. He believes that the energies now heating up those prayer meetings can be "shifted in new directions when scientific materialism is accepted as a more powerful mythology... transition will proceed at a more accelerating pace. Man's destiny is to know, if only because societies with knowledge culturally dominate societies that lack it."

The sociobiologist's argument runs something like this. Religions had survival value. There was time in prehistory when belonging to a group offered more protection than not belonging. I suppose that those who stood up to be counted behind their leaders got the kind of preferential treatment that contributed to their survival, perhaps a distribution of meat, a better piece of land, or the benefits from the sacrifices of the altruistic few among them. Sociobiologists will tell us that there were special genes that determined the choices to belong to a group, and once those choices were made over the millennia, those genes increased in frequency. That is the reason why most persons today identify with one or another of the main religions. They carry more of "church genes."

To continue the argument, the sociobiologists would say that knowing has greater survival value than faith alone. For example, what shaman could use insulin; where, in either of the Testaments, Korans, and the like, do we find the recipe for small pox vaccine, the cause for cholera, and the nature of electricity? Those who know are presumed to have an edge over those who do not know, and, somehow, they will begin the long process of replacement of the "church genes" with the "unchurched" ones. I am convinced that such a replacement will be a long process. Those "church genes" must be very firmly implanted. Many humans would still rather believe than know despite the promise of eventual enlightenment. The scientific enlightenment that has changed the world has changed fewer minds: the belief in astrology and Ouija boards in predicting or controlling human destiny is stronger than ever; far too many rely on the portents of seances, the directives from biorhythms, yield to faith healers, snake oil, and the likes of Jeremy Rifkin. Many people simply do not trust scientists. They blame scientists for everything bad, from the spoiling of the environment to the Challenger and the Chernobyl catastrophes.

Nevertheless, there is still hope. Although we are fewer, we can make a difference in the way that the world will go, and an important aspect of our ability to sustain will come from the power to know and accept more about the realities of existence.

One of the most important places to continue to approach our reality is in the scientific story of origins. It is very important to be able to be realistic about explaining ourselves, and to know how we relate to the rest of world. The ancient leaders knew this, and so have erected the myths and the great epics to insure that they would gather and hold on to followers. Imagine, if you can, the attraction of the myths that were so powerful that they could "explain" where we came from, in terms so convincing and satisfying that they would be accepted and certified on faith alone.

Science tells a story about origins that has a different ring to its certification. To certify that something is valid in science requires that observations (or beliefs) be reduced to explanations which must then be tested either by experiment or by historical congruence. Even though we can not test hypotheses for the origin of life directly, we can find the plausible means to account for it with experiments and explanations consistent with the known properties and behavior of matter.

In the following scientific account I will deal only with the beginning of life, and proceed only to the appearance of those complex cells which were the launching pads for all the higher forms of life.

I will show that it is an inherent property of matter to become alive. A supernatural force was not needed to blow the man out from the dust, or to extract the woman from the rib. All that was needed was for matter to interact with time and with the conditions already present on the primordial earth.

Once matter became alive and subject to natural selection, its enormous potentials rolled onwards to inevitably form all that we know to be alive. So think about all the potential seated in the primordial stuff. The power to evoke elephants, blades of grass, blues of berries, songs of birds. As difficult as it may be to believe, even the soaring reaches of the mind must have lain dormant in the matter that was assembled on earth when everything began some 4.5 billion years ago.

Life and its Origin

The planet earth was assembled along with the other planets from the matter left over after the sun was formed. Earth differed from the other planets in the solar system by its position and its size. It was close enough to sun to be warmed, not broiled, and its position also profoundly influenced its composition. Earth came to be made up of a greater proportion of the heavier elements (comparable to iron and the silicon in sand) giving off most of the lighter elements (hydrogen and helium) to the planets (like Jupiter) forming farther out. The result was a *terra jirma*, solid substance underfoot, rather than something more nebulous. Planet earth also turned out to be the right size to exert sufficient gravitational pull to hold water on its surface as well as atmosphere above. Taken together position and size led to the kind of conditions that fostered life in the beginning and preserved it to the present.

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We begin, therefore, with a set of seminal conditions that happened to be present on one of the relatively small inner planets of a particular constitution. We will let substances be and then tell what happens when they run their course over a billion year~. But how will we know when they are done, when they have finally crossed over from the inanimate to become alive?

We know when the cake is done by the toothpick test. When baked the cake will have properties that are different from the unbaked condition. When alive matter should also have changed its properties.

Living things respond to stimuli in an organized way. "Poke it with a stick. See if it moves." Any kid will tell you that.

Life also undergoes metabolism. Like a flame, the living thing must constantly transform and redirect matter and energy towards the performance of itself. It does this through its metabolism, a complex internal chemistry that is behind our every breath and the source of all our body heat.

Life will also grow and then reproduce itself with some fidelity. Every living thing will perform such processes as a result of an ongoing metabolism. Therefore, we ought to identify living by their ability to respond to stimuli, grow, and reproduce. However, we will be in trouble if we do so.

The processes I have named do not set life apart from nonlife, certainly not as cleanly as we would like. Flames and fountains display all the properties I have mentioned. They transform matter and energy into their own kind. They have a kind of "metabolism." Flames and fountains respond to stimuli; flames burn hotter when fanned, fountains go higher when they are supplied at higher pressures. Besides, they will also grow and reproduce. Certainly one fire can make another; most of us have seen ice crystals grow and advance across the window pane. But flames and fountains are not alive.

It is not easy to distinguish life from nonlife. And why should it be? Both life and nonlife are a part of this world. Matter is matter whatever it constitutes. And energy is still energy whatever it moves: wheels, hearts, minds.

But surely there must be a way to distinguish what is living. I believe that life becomes separated from nonlife by its ability to undergo evolution by natural selection. Anything that is alive has the potential to become something more than it was through evolution. But what is not alive will always remain the same. We would not expect a lump of sugar to get up one fine day and roam around. It will always be the same thing until you drop two or so lumps into your morning coffee and then drink it.

Darwinian evolution operates through a genetic system which is here defined as much more than what we inherit through our parents. The genetic system is a complex organization of molecules that informs organisms about themselves, who they are, and what they must do to live.

The agents of the genetic system are the nucleic acids and proteins. I shall return to these molecules later on, after I talk about other features useful in distinguishing life from nonlife.

Living systems have specific compositions and organizations. Life must have begun with the transformation of simple substances into those specific complexities of organizations that we see today. Of course, it could be that life began with something different than it has at present, but that would be highly unlikely given the universal distribution of certain kinds of molecules throughout all of its forms. Anything that universal had to be there at the very beginning and had to have been carried through the ages, generation after generation.

Whatever lives draws upon the same pool of elements and makes the same classes of compounds. Life incorporates relatively few of the principal elements. Although more are involved, the major ones are hydrogen, oxygen, carbon, and nitrogen. Some of the others include iron, calcium, and phosphorous. There is nothing really special about these. Taken together all can be found any place in the universe. Differences, however, begin to surface when we see how the living substance ties these elements together into specific kinds of molecules. The classes of molecules that comprise life fall into four main categories: carbohydrates, lipids, proteins, and nucleic acids. Each is built in a specific way, and each serves special functions.