

**Darwinian Natural Selection  
and  
Extraterrestrial Life**

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## **Extraterrestrial life**

Herein extraterrestrial means sentient life anywhere in the universe except Earth. Sentient life is “human like” as compared to other animals. On Earth humans are unique. No other species possesses the advanced qualities of speech and complex communication. Some other species feel emotions and are aware of their environment, but not in the same manner or degree as humans. In this paper extraterrestrial life assumes these attributes.

## **Darwinian evolution**

In the mid-1800s Charles Darwin and Alfred Russel Wallace independently introduced the notion that species are created and advanced by natural selection. The two men were friendly and cooperated to present this discovery to the world. Ultimately Charles Darwin published the material. As a result, Darwin is acclaimed as one of the greatest scientists in history. He is buried alongside Isaac Newton, another genius. Wallace drifted out of the limelight but spent several years advancing Darwinian natural selection. A truly noble person.

Darwinian evolution is accepted as fact. Creation of a species is predicated on natural selection. Observation of very complex life forms just screams that there must be a designer. Darwin and Wallace found that a designer is not necessary, natural selection does the job. This was a monumental, earth shaking, revelation.

### **What is a species**

A species is a creature that can reproduce fertile offspring. Mating a horse and a donkey produces a mule. Even though a mule can be male or female they are not fertile and cannot produce a baby mule. A mule is not a species.

Species do not normally interbreed otherwise the plant and animal kingdoms would be a mishmash. Species would cease to have meaning. But, when species do interbreed, they produce a “hybrid” that is usually, but not always, non-fertile, i.e., the mule. Humans create hybrids intentionally to develop a particular characteristic, i.e., the seedless watermelon.

When the hybrid is fertile it may have features better than either parent. Hybridizing fertile corn produces improved characteristics. Fertile hybrids can also exist in the wild, but less often. This may be a new species. If so, it is a variation of Darwinism.

## **Natural selection**

Opponents of Darwinism often liken it to a game of pure chance. If a monkey is given alphabet letters to arrange will, given enough time, arrange the letters to produce the Gettysburg address. Nothing is further from the truth. Natural selection is not a game of chance.

The first feature is that natural selection must enhance survival. When an organism mutates, it differs from the parent organism. For example, a mutation can cause a longer neck that gives the creature an advantage of survival. The second feature is that the new characteristic must be inheritable and passed on to the next generation. On the other hand, if a mutated feature is not advantageous, the creature may die out and go extinct. This normally transpires over a very long period of time, even millions of years.

Humans have accelerated the process by exploiting short term mutations. Every dog is a descendant of the wolf, but by selective breeding in just a few thousand years many types of dogs have been created. Nearly all domesticated animals and plants are bred to enhance desirable characteristics. For example, there are “beef cattle” and “dairy cattle”. This lends credence to the much longer timeline of natural selection.

The environment of a creature influences favorable mutations. Two similar creatures separated to different environments mutate different characteristics. The unique creatures on the Galapagos islands started Darwin’s curiosity about natural selection. Australia also has some fine examples.

## **First life**

There was a time in Earth history that no life was present. Certain chemical soups were bubbling and brewing. One of those brews created life. Though very, very improbable, it only had to happen once.

According to Darwin and Wallace first life was one (or a few) very small organisms from which natural selection began. Every existing species has this common ancestor(s). From the beginning natural selection started a journey with many branches. At every branch two new evolution paths continue. Any two organisms trace back to a common branch point. Two mutations occur, each of which is survivable. One organism may be animal and the other vegetable but when traced back, there is an organism at a fork-in-the-road common to each. This common ancestor may not look very much like either of them. Furthermore, each branch is far advanced from first life. There may be 30 million species in the world. That is a lot of forks.

This realization is breathtaking, but it is the only way Darwinian natural selection can work. Each branch of the fork depends on mutations that favors survival. An organism can mutate in many ways that favor survival. The way forward is not unique or predetermined. It could happen that a different mutation survives and travels a different evolutionary path.

Just think of the impact of this. We are programmed to believe we are unique. We are not. If it were possible to go back to first life and press *Start*, we would not be the same as we are now because of the non-uniqueness at each fork. We probably would not even recognize the other. In fact, it is possible, even probable, that this new natural selection path would fail to produce a “higher being”, just more gorillas and onions. There is a common fork for these two as there is for any other pair. We are darned lucky to be us.

Humans are not descended from apes. Every variation of ape has its own path back to a fork-in-the-road. Chimpanzees, gorillas, orangutans and humans each have separate paths to a fork. Do they trace back to a common fork? Not likely, but who knows?

## **Extraterrestrial challenges**

The possibility of extraterrestrial life existing is a subject of great discussion. But the issue is more subtle. Can the existence of extraterrestrial ever be known to people of Earth? Have they sent radio signals to us? Is there a possibility that extraterrestrial life has ever visited Earth? If so, where is the evidence? Why go to all the effort to get here then fail to communicate in any form?

### **The time synchronization problem**

The universe is about 14 billion years old. Life on earth began about 5 billion years ago. Our ability to detect a radio signal from an extraterrestrial is less than 75 years old. Assume that life on another planet followed a similar evolutionary path. The closet star is 4 light years away and the other stars are much further. Take an example of a planet 2000 light years away. Any radio signal transmitted from there started 2000 years ago, the time of Christ. The odds of hitting our 75-year window are extremely small.

### **The background noise problem**

We are searching for radio signals from way out there. An extraterrestrial signal must travel a very long way and it becomes much weaker as it travels. A very high gain antenna can receive a weak signal. But there is a bug-in-the-ointment. Outer space has a background radio noise left over from the Big Bang. The

antenna receives that noise mixed with the transmitted signal. The transmitted signal becomes very, very weak over the huge travel distance. The signal is buried in the background noise and can no longer be recovered. There are filters and algorithms to mitigate this problem, but eventually the signal is irrecoverable. In addition, a high gain antenna is very directional. It can only “look at” a small area of the sky at one time. A signal coming from any other direction in the enormous remaining space is not received. Stars are visible only because they are very large and very bright. The *I Love Lucy* television signals are over 60 light years away but are already buried in the background noise. Sorry cosmos companions, you cannot enjoy her antics.

### **Extraterrestrial travel**

Extraterrestrial travel presents an even greater problem. A space craft leaving a planet cannot accelerate away and proceed toward us at a velocity greater than the speed of light, 186000 miles per second. Not very fast for interstellar travel. In outer space distance is measured in light years, the distance a radio signal travels in one year. ( $186000 \text{ mi/sec} * 60 \text{ sec/min} * 60 \text{ min/hr} * 24 \text{ hr/day} * 365 \text{ day/yr} = 6 \text{ trillion miles per year.}$ ) Interstellar objects are much further away than one light year. This gives an appreciation for how far an extraterrestrial must travel to make contact.

If the extraterrestrial space craft could reach one-half the speed-of-light it would take 4000 years to reach us. Our present technology cannot come even close to one-half the speed-of-light. The likelihood of hitting our 75-year window is very small.

The 2000 light year distance is a small piece of the universe. At greater distances the problems become exponentially greater. The likelihood of radio or physical extraterrestrial contact is virtually zero. So, stop worry or obsessing over it.

### **An inconvenient truth**

A recent television program showed stone sculptures from Mayan and other ancient cultures. These sculptures, they claim, could have only been created by extraterrestrial beings. They showed depictions of space suits and manpacks like present day Earth equipment. They suggest that the aliens came from the constellation Pleiades. Pleiades is about 400 light years distance. That is near in cosmological terms, but it is still very far away. The program does not offer any theory on how the trip was made, only that the sculptures themselves suggest the proof of the visit. It is much more likely that the sculptors are unknown terrestrials.

**Axiom: Not knowing an explanation for something does not mean there is not one.**

## **Darwinism across the universe**

Darwinism is not confined to Earth. It applies anywhere that life proceeds from a very small beginning. A lifeform must initiate from a small beginning. It cannot just spontaneously spring forth into a complex lifeform. There cannot be a moment of nothing then suddenly a gorilla is sitting there looking perplexed. (The chimpanzee is our closet relative, but the author has a fascination for gorillas.)

By the same reasoning a lifeform on another planet would almost surely evolve into something very different from us. A green being with a funny head and long neck is a popular fantasy. It implies almost, but not quite, the same as we are. It will be nowhere near the same. So, stop looking for, or expecting, contact with extraterrestrial life. If it happened, we would not recognize it. There will not be a "Take me to your leader." moment. There is a popular myth that extraterrestrial life will be far advanced from us. Why is that? Are we so backward?

## **Unidentified flying objects (UFO)**

A UFO is an unidentified flying object (UFO). Not necessarily a UEFO, unidentified extraterrestrial flying object. Our citizenry wants to believe that the laws of physics have been overcome by extraterrestrial beings. The laws of physics are the same everywhere. The very existence of the universe depends upon this fact.

A better definition for the acronym is Unexplained Flying Object. It is erroneous to ascribe extraterrestrial to unexplained. Sometimes unexplained stays unexplained for a very long time. Remember the song lyrics *Anything you can do I can do better*. That is attributed to the extraterrestrials, but it is not necessarily so.

A recent television broadcast described a wreckage in the desert as a crashed UEFO. An extraterrestrial advanced enough to reach Earth by spacecraft is advanced enough to not crash land.

## **Is Einstein wrong??**

The only way that extraterrestrial events can occur is to negate Einstein's the speed of light limit, not slightly, but tremendously. It is one of nature's miracles that the speed of light has a limit value. The universe cannot exist without it being so. The speed of the gravitational wave is tied to the speed of light. If the speed became infinite, the whole universe would implode upon itself.

Proponents of extraterrestrial events assume that the Einstein limit was overcome, but they have no explanation for how it was accomplished. Just that they must be far advanced from us. Poppycock!

## **To infinity and beyond**

A spacecraft with a flashlight on board departs Earth destined for a distant planet.

Let Earth disappear from the universe. The spacecraft continues toward the distant planet.

Let the distant planet disappear from the universe. The spacecraft is still traveling with respect to the other objects in the universe.

Let the rest of the objects disappear. The spacecraft is now the whole universe. It has no speed or direction because it has no frame of reference.

Turn on the flashlight briefly to create an expanding sphere of light. The pulse of light travels away from the space craft in all directions at 186000 miles per second.

Let the spacecraft and flashlight disappear.

The sphere of light expands forever like the surface of thin balloon. The intensity of the light decreases as the balloon expands. At infinity time the light ceases. The universe is empty.

If the Big Bang occurred, are we on the shell of the balloon with an empty space in the center?? At time infinity the universe ceases to exist. The objects in the universe do not evaporate, they become infinitely far apart. Present scientific opinion favors the universe expanding in all directions and likely to do so forever. So, time and space have no meaning. Gravitational attraction is zero. Such is the marvelous nature of infinity.

Scientists predict that the sun will flame out much before infinity time. But curtains for Earth does nothing to seriously impact the universe. It got along just fine before we arrived and will continue to do so after we are gone.

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