



Origin of the Seed of Life

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Primordial Soup

The seed! Package of spark for a future living being, the first or final step of the eternal cycle of life. Some scholars claim that all begin at early oceans on the Earth. The idea known as *primordial soup* means that the mix of gases in the early earth atmosphere combine with energy from lightning strikes could spontaneously form the amino acids in the oceans. This scenario represents the hypothetical set of conditions present on the Earth around 4.2 to 4.0 billions of years ago first proposed by Alexander Oparin 1924, and John Burdon Haldane in 1929. The basic points of the *Oparin-Haldane hypothesis*, Robert Shapiro, biochemist, has summarized as follows [1]:

- i. Early Earth had a chemically reducing atmosphere.
- ii. This atmosphere, exposed to energy in various forms, produced simple organic compounds – *monomers*.
- iii. These compounds accumulated in a *soup*, which may have been concentrated at various locations, shorelines, oceanic vents, etc.
- iv. By further transformation, more complex organic *polymers*, and ultimately life – developed in the soup.

In 1952 American scientists Stanly Miller and Harold Urey, try to test the theory. They conducted the experiment which demonstrated that few organic compounds could be formed. This experiment showed that organic molecules amino acids created from inorganic materials by natural environmental heat and

lightning, without enzymes. During the experiment, they used water (H_2O), and a mixture of methane (CH_4), ammonia (NH_3) and hydrogen (H_2)-materials which were believed to represent the major components of the early Earth's atmosphere.

One week later analysis shows that as much as 10-15% of the carbon within the system was now in the form of organic compounds. Two percent of the carbon had formed amino acids, including 13 of the 22 that are used to make proteins in living cells, including glycine.

Although the scientific community accepted the primordial soup theory as very possible, there were also contrary opinions from the beginning, skeptics of this theory who remain unconvinced. Thus Gatherer Derek transmits the statement of British astronomer Fred Hoyle, who says [2]: "The chance that higher life forms might have emerged in this way is comparable to the chance that a tornado sweeping through a junkyard might assemble a Boeing 747 from the materials therein."

Less than two decades of this experiment later, on September 28, 1969, the Murchison meteorite was found to contain over 90 different amino acids, and 19 of them are included in Earth life. Meteorites and comets contain large amounts of complex carbon formed compounds. The early Earth was bombarded heavily by comets, and by other cosmic debris, possibly providing a large supply of elaborate organic materials. This could imply an extraterrestrial organic molecule that means the origin of life outside of Earth, which then propagated here.

Panspermia

The panspermia hypothesis states that the seeds of life exist all over the Universe and could be migrated all around through space. Certain scientists believe that life on Earth may have originated from these *seeds*. The panspermia theory predicts that the seeds of life can traverse the universe in different ways:

Lithopanspermia or interstellar panspermia; biological material traveling through space within an asteroid, meteorite or comet as a transfer device from one solar system to another.

Ballistic panspermia or interplanetary panspermia; the material of future life traveling through space within an asteroid, meteorite or comet as a transfer device spreading biological material from one planet to another within the same solar system.

Directed panspermia; the intentional spreading of the seeds of life to other habitats systems by an advanced extraterrestrial civilization, as a kind of experiment.

The meteor named Allan Hills (ALH 84001), was found in Antarctica in 1984, hit the Earth 15 million years ago, and was shown to contain structures that may be the remains of nanobacteria. Blasted out from the Mars (as ballistic theory predict) transported the biological material to Earth. Analysis has been performed on ALH84001, and organic material have been found; amino acids and polycyclic aromatic hydrocarbons.

Scientists at the German Aerospace Centre in Cologne designed experiments using the Russian FOTON satellite. They mixed bacterial spores with particles of clay, red sandstone, Martian meteorite or simulated Martian soil to make small lumps a centimeter across. The lumps were then exposed via the satellite to outer space. After two weeks of exposure, researchers found that nearly all of the bacterial spores mixed with red sandstone were able to survive. Another study showed that bacterial spores could survive the extreme conditions of outer space for six years if they were protected from extraterrestrial solar UV radiation. This would be possible if the spores traveled within comets. Another research shows that isolated bacterial spores preserved in amber can remain viable for up to 250 million years. Thus, bacterial spores could potentially account for life on Earth [3].

Although two 4.5-billion-year-old meteorites crashed to Earth in 1998, it's taken until now to uncover some of their secrets. The two meteorites, called Monahans and Zag, are the first discovered to contain the ingredients for

life: liquid water, amino acids, hydrocarbons and other organic matter. Although it's not exactly proof that life exists beyond Earth, the traces of water in the salt crystals could date to the earliest days of our solar system. The researchers compared it to finding a prehistoric fly preserved in amber [4].

Some alien objects may have brought the seeds of life to the Earth, but some have certainly endangered the survival of life on the planet. Before about 65 million years ago the Earth was hit by an asteroid with a diameter of 10 km, has caused havoc, destroyed the dinosaurs and put the very existence of life on the edge shutdowns. Inducer of this cosmic drama was Baptistina asteroid.

Baptistina

Baptistina the asteroid came from deep space, even before 160 million years. He burst in Cooper's belt, struck a large asteroid smashed it on par fragments of which one traveled deep cosmos some 55 million years ago hit the Moon, other hit the Earth about 40 million of years later! It is estimated that the energy released by this shock is so great, straight to the sum of the energy of the atomic bomb dropped on Hiroshima, which should explode every second for three years! Survivors are just a few forms in greater depths of the sea, and small animals burrowed into deep holes and caves. The mammals of the time were only the size of a field mouse. By the help of the program, WISE - Wide-Field Infrared Survey Explorer, launched by NASA, has come up with some surprising results. Located measurement infrared light *Baptistina Family* asteroid in a Cooper's belt, have shortened the time when Baptistina fragment blows the Earth from 65 million to just 15 million years ago. If this claim is substantiated with sufficient evidence and the scientific community accepts it as a fact, there is an extremely important question: whether it is 15 million years old enough to mammalian evolutionary shift from a small mouse (the biggest mammal in the age of the dinosaur extinction), over the next evolutionary step to man—or more precisely just over 11 million, until the appearance of the Australopithecus man nearly 4 million years ago [5]?

Epilog

Questions are numerous, scientifically identified answers are insufficient. Whether the seeds of life came from the impact of a meteor, comet, or the cradle of life is actually earthy cuisine - primordial soup? Chandra and Hoyle claim that the source of life is panspermia which argues for life being a cosmic phenomenon. In the book of Genesis, in The Beginning, Lord said: Let us make mankind in our image, in our likeness! There is an opinion

that life on earth is a result of the experiment of extraterrestrial superintelligent beings, or they even sent robots to do the job. Who are the Dogon people, and how do explain the mystery of Sirius? Who created Nazca lines and what is their purpose, UFO, Stonehenge, etc. just part of the questions besides numerous unexplainable mysteries around the globe. There are still more questions than answers, so in the end, each of us has some opinion, is not it?

References

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