Molecules That Began Life

The theory of evolution relies on the idea that life came from non-living material. However, there are many gaps in the logic of this idea. Nobel laureate Max Delbruck wrote this:

There has been an immense conceptual gap between all present-day life and no life...the how of the transition of the earth from no life to life is perhaps the fundamental question of biology.[i]

Most scientists today believe that the Biblical story of life's origins is unscientific. However, if life began from the non-living, organic molecules must have evolved from inorganic molecules to somehow form the first living cell. In this context, Creation makes more sense.

In the 1920s, the Russian biochemist Oparin and the English geneticist Haldane both suggested that there was no oxygen in the atmosphere at the time life was forming. They said that life could have come from organic molecules formed in such an atmosphere.

In 1953, Stanley Miller tested Oparin and Haldane's hypothesis. He made a simulation of the oxygen-free atmosphere (see figure 1). After passing sparks through the atmosphere, he was able to isolate nine amino acids, which are the building blocks of protein.[ii]

Since then, similar experiments have produced 19 of the 20 amino acids, as well as other building blocks of the living cell. These experiments are considered absolute proof that life came about by chance.

Popular belief is that these newly created organic molecules came together in the ocean, forming a kind of organic soup. But in order for these molecules to become living structures, they had to be polymerized (joined together).

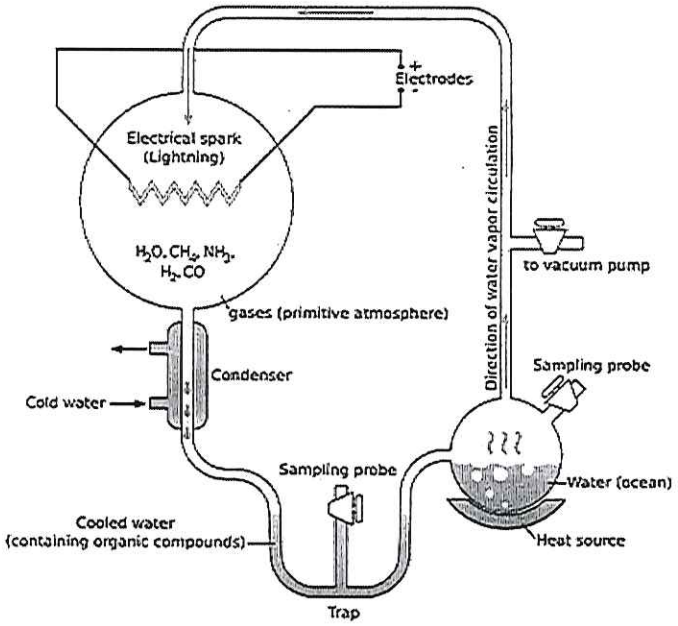


Figure 1: Stanley Miller's apparatus.
Source: Yassine Mrabet.

Sidney Fox proposed that this could have happened around the rim of the equators where there was heat and evaporation. Fox showed that when a mixture of amino acids is heated at 200°C for up to seven hours, protein-like structures that he called protenoids can form. When these protenoids are cooled, they are non-living particles that look like primitive cells.

Although some say that these protenoids grow, bud, and break apart like living cells, they really only recombine due to attractive forces and chemistry. Protenoids are not living, and they are not even made of the appropriate matter to be organic. Together, these experiments are supposed to give credibility to the theories of evolution and naturalistic origins. However, the evidence is full of holes.

The Atmosphere

Scientists agree that for the organic molecules to come together to form life, the atmosphere could not have contained any oxygen. If oxygen was present, it would react with any organic compound and turn it into carbon dioxide (CO_2) and formic acid.

According to the naturalistic view, the earth's original atmosphere must have been made of volcanic gases, since oxygen would not be produced until later, after plants evolved. However, the atmosphere Stanley Miller had in mind did not resemble volcanic gases. Volcanic gases are rich in CO_2 and water, and also contain nitrogen,

hydrogen sulfide, and sulfur dioxide. When these gases are put under Miller's experimental conditions, they make ammonia, nitric acid, or formaldehyde.[iii,iv]

Our atmosphere today has 20% oxygen. This oxygen was supposedly built up after photosynthetic organisms evolved. However, without oxygen there would have been no ozone to protect the earth from the sun's dangerous ultraviolet (UV) rays. Life could not have evolved in these hostile conditions. The UV rays would have killed any molecule before it could form into even the simplest life form on Earth.

Along the same lines, amino acids would need an atmosphere rich in ammonia. However, UV rays destroy ammonia. If the atmosphere was oxygen-free, then it would also have been ozone free, meaning that there would have been extremely high levels of UV.

The evolutionary theory suggests that living molecules came together in the ocean. However, if there was an ocean, there was water. Water contains oxygen. This oxygen would have been released into the atmosphere when UV rays hit the water. And if there was oxygen in the atmosphere, living molecules could not form.

Water is necessary for life, but life could not be formed with water in the atmosphere, according to the naturalistic view. This circular problem shows that life could not have come from non-living compounds.

Organic Molecules

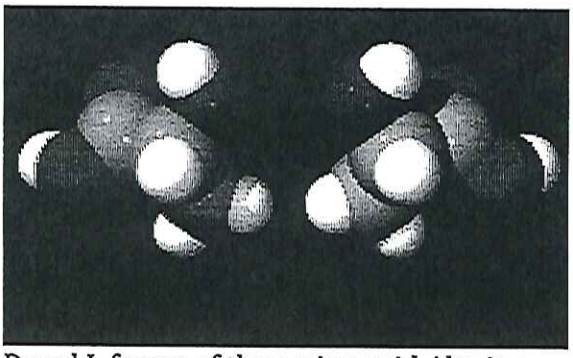
Hostile Conditions

In experiments that imitate primitive conditions, such as Stanley Miller's apparatus we saw earlier, there is always a trap to remove the molecules from the sparks or radiation used to produce them. In the real atmosphere, however, there would have been no such trap.

The conditions that, according to natural science, allow these organic molecules to form would also lead to their destruction. If the molecules were unable to escape these conditions, they would be destroyed before they could ever form into a living cell.

The Right Form of Molecule

Another problem in this logic is the combination of L and D forms of molecules. Many organic molecules occur in two forms, L form and D form.



D and L forms of the amino acid Alanine.

Living organisms can only use the L forms of amino acids and the D forms of sugars. However, experiments that simulate primitive Earth produce an equal mix of L and D forms of amino acids and sugars.

The chance that these molecules formed in the first place is extremely minute. It is even less likely that if they did form, the right ones would be selected.

Polymerization

Even if the molecules of life did form, and only the right sugars and amino acids were produced, there is still another problem. Isolated organic molecules do not make up life. These molecules would have to join together (polymerize) to form bigger molecules such as proteins and nucleic acids.

Polymerization is a delicate process. It becomes even more complicated when the right L and D forms have to be selected. Polymerization is not possible in water. Therefore, it is suggested that volcanoes heated and eventually evaporated the primitive oceans that contained the organic molecules.

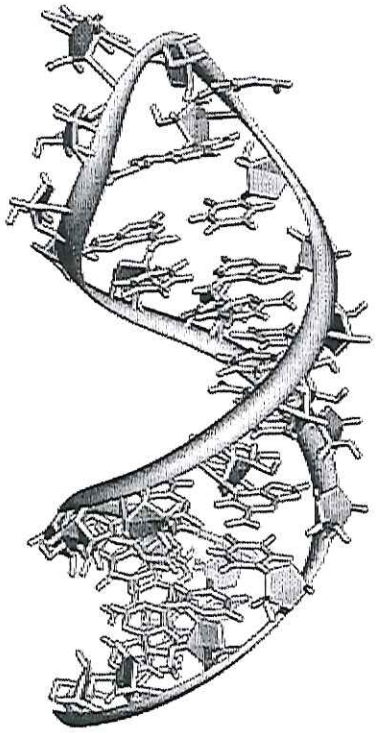
Volcanic heating would allow protenoids to form, but protenoids such as the ones produced in Sidney Fox's experiments are non-living.

These protenoids don't even have the right building blocks to form life. Living organisms use only alpha-amino acids. Protenoids, on the other hand, contain many other types of amino acids that are useless to living organisms. They also contain both L and D forms of amino acids, even though living molecules can only use the L form.

Nucleic Acids

Nucleic acid molecules contain chains of genetic information, and are found in every living cell. They are made up of nucleotides with four different bases: thymine, cytosine, adenine, and guanine in DNA, and uracil instead of thymine in RNA.

Nucleotides contain three main elements: one of the four nitrogenous bases, a sugar called ribose, and a phosphate. The sequence of these nucleotides carries the genetic information that determines the structure of proteins.



A small portion of an RNA strand.
Source: Vossman on Wikimedia Commons.

Based on this relationship between proteins and nucleic acids, which came first? The traditional view is that proteins came first. However, it was discovered that RNA (ribonucleic acid) had enzymatic activity, leading to the idea that perhaps nucleic acids were formed first.

There are many problems with this theory. Some of the nitrogenous bases of nucleotides are made from cyanide. Where did all the cyanide come from to produce the nucleotides? Also, the ribose for nucleotides forms naturally in only very small amounts, and is quickly destroyed.

It extremely unlikely that the nucleotides would arrange themselves in the right sequences for forming nucleic acid. This is a similar problem to the amino acids in proteins. The likelihood of either nucleic acids or proteins being formed by chance is beyond minimal.

If a molecule of DNA did form by chance, how would it multiply? For DNA to replicate, enzymes are required to unravel the molecule. But where did all the DNA in the enzymes come from?

This is a circular problem that cannot be explained by evolution or natural selection—and the gaps in these theories do not stop here.

Enzymes and Nucleic Acid Formation

Nucleic acids must have the exact correct information for the construction of proteins to work. Therefore, there is a complex system of enzymes to ensure that the nucleic acids don't have any errors.

The enzymes that build nucleic acids are called polymerases. While these polymerases work, other enzymes called editases check the polymerases' work, and fix any errors. How could this profound and awe-inspiring system have been formed through chance evolution?

This complex system poses a major problem to the theory of naturalistic origins. Imagine that nucleic acids are like a book of blueprints for a ship. The people editing the book would not know that there are errors in the blueprints until the ship had been built and tested. In the same way, it would be impossible for the editases to even know if there were errors in the nucleic acid unless they had a foreknowledge of the proteins that the nucleic acid was blueprinting.
The existence and work of editases points clearly to an intelligent Designer. To believe that these checks and balances came about randomly requires an awesome faith in the god of chance.

It would have been next to impossible for the molecules needed for life to evolve by chance. And even if they did, their existence does not qualify as life. These molecules must be arranged in a very particular order and joined together for life to arise. No scientific endeavor to this end has shown how this could have happened. The only other option is that life began through a Creator.

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i. Max Delbruck, *Mind From Matter?* (Palto Alto: Blackwell Scientific Publications, 1986) 31.
ii. Stanley Miller, "A production of amino acids under possible primitive earth conditions," *Science* 117 (1953): 528-529.
iii. D. Black and J Pollack, "Implications of the gas compositional measures of poineer venue for the origin of planetary atmospheres," *Science* 205 (1979): 56-59.
iv. G. Gladstone, J. Pinto, and Y. Yung, "Photochemical production of formaldehyde in Earth's primitive atmosphere," *Science* 210 (1980): 183-185.