

The insufficient part of abiogenesis theory - natural selection

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Abiogenesis has already been studied for a whole century. There have been studies on the synthesis of precursors of biopolymers, concentration processes and polymerization pathways, sites of initiation of life. Autoreplication has been explained. Protocells have been constructed from abiogenic membranes. But one essential aspect for life – the natural selection – has been marginalized in these investigations. Despite the convincing use of natural selection in biology for one and half century, it has not been used sufficiently in the models of the beginning of life. Pictorially – Darwin's pond model is used without darwinism. This generates an unnecessary interruption on the path for understanding the process.

Natural selection is essential in abiogenesis, in the genesis of biological information system. A selection of more collaborative autoreplicate biopolymers and the depolymerisation of others was required. Only natural selection was able to combine biopolymer molecules for life.

The primary natural selection can operate only in an environment with variable physical and chemical conditions. The selective agent must constantly fluctuate during a long time span and a large area. Formation of the simplest complex of life needs homeostasis.

The best sites for constant fluctuations are littoral areas of oceans. Two very constant fluctuations – waves and tides – occur there. The best conditions for the origin of life were exactly in the end of the Late Heavy Bombardment at temperature nearly 100° C. Earth's surface was then protected against the UV destruction by a thick cloud cover. High evaporation at the hotter parts of shore rocks increased the concentration of the primordial soup and there was excellent selective power by routine water level fluctuations. Because of the water level fluctuations salty ocean water and fresh water from continuous downpours alternated at the littoral zones.

In low temperatures the formation of life would be hindered by UV-radiation and low concentrations of monomers. Rift areas or small ponds, on the other hand, do not have sufficient continuity of chemical conditions, fluctuations and coverage area, to be suitable sites for the initiation of life.

The localisation of possible sites of abiogenesis enhances the validity of studies on the chemistry of abiogenesis. Life initiated in a triple point of space by the force of a routine selective alternation of one component in a complex. This routine generated the first information of life from causal signals of the environment.