

The Origin of Life

from "How Life Began" by William Day

INITIATION

Carbon dioxide is reduced on pyrite surface.
Complex molecules are synthesized and accumulate.
Organic compounds bond on Fe-P mineral surface.
An isoprenoid membrane forms.
A cytosol forms from entrapped molecules.

ANTEGENESIC CELL

The energy core for a metabolic system forms.
High-energy phosphate compounds activate molecules.
Keto acids and the first amino acids are synthesized.
The pathways grow, synthesizing coenzymes.
The coenzyme pathways interconnect to be autocatalytic.
The membrane is synthesized by the metabolic system.
Electron transport and photosynthesis evolve.
All constituents are synthesized internally and the metabolic system is completed.
Reproduction is achieved by repeating the growth steps.

GENETIC SYSTEM FORMS

RNA is synthesized and replicates inside the cell.
A series of tRNAs forms.
Aminoacyl-tRNAs are synthesized
Ribosomes form from selected RNA.
The translation mechanism develops.
Polypeptides are produced.
Synthetases evolve and a genetic code is established.
Proteins and enzymes evolve.

GENETIC-BASED ORGANISMS

Ion pumps form in the membranes.
Proteins join coenzymes and metabolic enzymes evolve.
DNA becomes the storage molecule for information.