

This chapter was originally about prebiotic evolution but gradually extended so that it became natural to drop the attribute `\blockquote{prebiotic}`. Of course, a collection of ideas rather than detailed history of life is in question. There are many rather speculative ideas such as the strong form of the hypothesis that plasmoid like life forms molecular life forms has evolved in `\blockquote{Mother Gaia's womb}`, maybe even in the hot environment defined by the boundary of mantle and core. The motivation for tolerating these `\blockquote{too crazy}` ideas is that according to recent TGD inspired theory of consciousness life is a completely universal phenomenon appearing in all scales.

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`\item` The basic facts believed to be known about pre-biotic evolution are discussed first.

`\item` A TGD inspired vision about prebiotic evolution is introduced. The key ideas discussed are the notion of magnetic body and plasmoids as primitive life-forms, emergence of symbolic dynamics as dynamics of dark matter, universal metabolic currencies identified as increments of zero point kinetic energies in many-sheeted space-time, time mirror mechanism giving rise to models of intentional action, memory and remote metabolism and finding justification in zero energy ontology (ZEO), the idea that primitive life forms evolved in `\blockquote{Mother Gaia's womb}` (to be discussed in the fourth part of the article in detail), and possible mechanisms making possible coherence of biochemical activities. Prebiotic chemistry is discussed from the point of new physics: the idea that dark matter makes possible symbolic dynamics justifying the idea that DNA can be seen as written text is the key notion. High energy `\index{phosphate bond}` phosphate bond as a carrier of `\index{negentropy}` negentropy is discussed in terms of negentropic entanglement and Negentropy Maximization Principle (NMP). A weaker assumption is that $\text{ATP} \rightarrow \text{ADP}$ makes only possible to generate negentropic entanglement.

`\item` Cambrian explosion represents a rather mysterious period in biology: new highly developed phylae emerged out of nowhere. A second strange finding is that continents would fit together to form single super-continent covering entire Earth's surface at time of Cambrian explosion if the radius of Earth would have been one half of its recent value. This finding has inspired Expanding Earth theories but it has not been possible to identify the mechanism causing the expansion. The success of the standard tectonic plate theory requires that possible expansion must have occurred in relatively short geological time scale. The hierarchy of Planck constants implies that cosmic expansion has occurred in quantum leaps increasing the value of h_{eff} and thus of quantum scales

by factors which tend to be powers of 2. Cosmic expansion would have occurred as jerks even in the case of planets. In the proposed model Cambrian explosion would have accompanied the expansion of the Earth's radius by a factor of 2: during this period an outburst of highly developed life forms from underground seas to the surface of Earth would have taken place.

\item The notion of generalized Josephson junction is central for the TGD inspired view about EEG. Generalized Josephson junctions of the cell membrane would correspond to various membrane proteins, in particular ion pumps and channels. Cell membrane would communicate with its MB by sending generalization Josephson radiation as dark photons to the MB. The sensory information would be coded by frequency modulation by membrane oscillations for a general cell and also by nerve pulses for neurons. The receiver, which would be cyclotron Bose-Einstein condensate, would receive the signal when in resonance. The FM signal would be transformed to a sequence of resonance peaks, ticks. This vision generalizes to the idea that generalized Josephson junctions form a length scale hierarchy. For example epithelial sheets consisting of two layers of cells would be this kind of system.

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