

The system of molecules that was formed via thermal motion of molecules in water

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[Introduction]

The substance gets hot when the crust melts into the mantle. CO₂ is released from carbonate and limestone, because the entropy of hot substance will increase. Hydrogen is decomposed from minerals and H₂O is produced. The water containing iron atom (Fe) and CO₂ is able to form intermolecular substances, such as membrane, micelle or liposome. The molecules of water are arranged at the interface, and intermolecular force of water forms a hydrate. The combinations of adjacent molecules are exchanged by thermal motion of molecules. The molecule that fits to the surroundings will be arranged selectively. This is the beginning of biochemical reaction.

[The system of water molecules that is revealed by the nature of carbonated water]

The thermal motion of clusters in carbonated water that is state at melting of ice was observed by using digital camera. [Refer <https://www.youtube.com/watch?v=Tsj7GDJyNkA>] The entropy of the carbonated water is smaller than that of pure water. The activation energy of the solubility of CO₂ is approximately the same activation energy of hydrogen bond. The degree of electrolytic dissociation of carbonated water is 0.017. CO₂ is highly soluble in water, but the solubility decreases rapidly with increasing of temperature. The solubility becomes zero at above 60 °C where the hexagonal lattice structure is lost. These facts suggest that molecule of CO₂ enters a penetrating hole in water, and the water molecule is aligned.

[Environment of the chemical evolution]

Since molecules at the interface are arranged regularly, the linkage among molecules of H₂O is enhanced at the interface. The chemical evolution had been carried out in the system of molecules, where trial and error of intermolecular bonds is carried out through the thermal motion. Fine powder of Fe will adhere to the cluster of dry ice that had put in the carbonated water, because the electronegativity of carbon atom is larger than that of hydrogen atom. On the other hand, the molecules of CO₂ are aligned at the surface of Fe powder, and the generated bubbles are surrounded by a basket shaped water molecules. The enlarged bubble together with iron particle will emerge at the surface of the water where the oxygen atom from H₂O and CO₂ oxidizes Fe atoms. Organic molecules are produced at the surface where the energy for the reaction is supplied from the sun and the molecules with high energy in the atmosphere.

[Concluding remarks]

The molecules of water are arranged at the interface, and a system of molecules can be formed by intermolecular force of water together with thermal motion in liquid water. The flexible system of molecules is the place of chemical evolution led to life birth.