

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

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[The first creature is formed by the reaction mediated by intermolecular forces.]

The hypothesis “the first organism had been formed in water by help of intermolecular forces and thermal motion” is proposed. The activity to produce the organization is able to repair the system, and it makes possible to achieve a long life, e.g. a soap bubble. The soap bubble is constructed by intermolecular force among molecules. It is able to acquire a long life due to the flexibility of the intermolecular bond.

[Intermolecular bond in the water. Chemical bond at water surface.]

Since the electronegativity of carbon atom is larger than that of hydrogen atom, carbon dioxide in carbonated water is attached to the surface of the iron. The bubble of carbon dioxide enlarges by gathering of the carbon dioxide. And it rises up to the surface of water together with iron powder due to the intermolecular force. Bubble will burst at the surface of the water. After repeating of the generations, some bubbles will achieve long life. Here, oxygen atom in carbon dioxide that gained energy at the water surface will oxidize iron. The iron oxide falls to the bottom of the water. So, the remaining carbon atom makes the robust bubble.



[The chemical reaction in water that takes a long time]

There are interactions between molecules in liquid water. On the other hand, molecules in gas make thermal motion independently. So, there exists small amount of molecules with high energy. When the molecules collide with the surface of the water, the molecules with high energy causes a chemical reaction. So the chemical reaction takes time.

Fig.1 The bubbles on the surface of the water made from iron powder in carbonated water

[Three-dimensional molecular structure of water]

The typical structure of water is illustrated in Fig.2.3.4.5.6.7.



Fig.2 Model of α -crystal type of water.

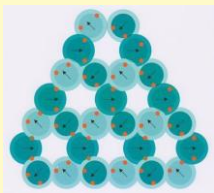


Fig.3 Planar arrangement of hydrogen bonds



Fig.4. Through-hole along optical axis

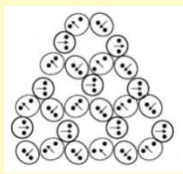


Fig.5 Three-way of electric axes are crossed

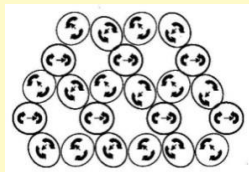


Fig.6 Rotation alternately with neighboring molecules

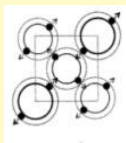


Fig.7 Expansion occurs at 90 degrees difference of rotation.

[Observations of thermal motion of particles in the water (enlarged view of 4000 times by frame-by-frame video images)]

The flickering in the movie is caused by thermal motion of particle.

Since the thermal motion of particles in the water moves quickly, we could not observe the movement with the naked eye. Intense flicker is observed in the movie on the particles in water captured by a digital camera. Looking at the video by frame-by-frame, we can observe that many fine particles are changing the position during the time of one frame. The flickering is not flicker-noise of the digital camera.

Images of frame-by-frame shown in Fig.8 were captured by putting the slide glass on the processed milk was diluted 100 times with water, and by using the microscope objective lens x40, eyepiece lens x20, optical-5x of digital camera.

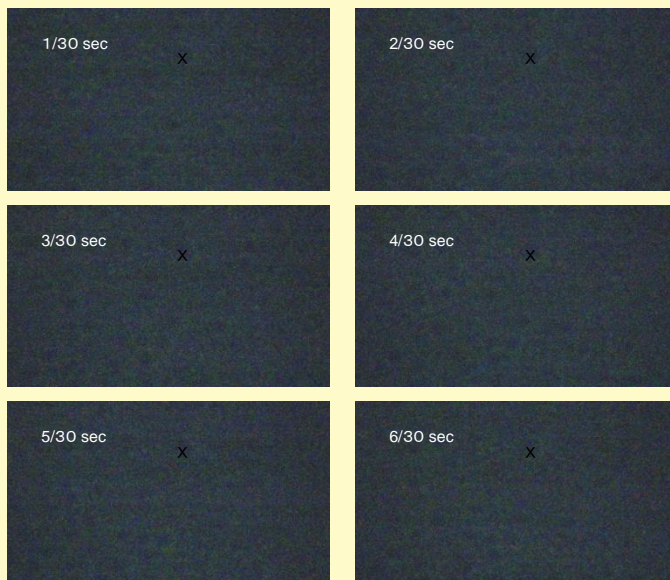


Fig.8 Thermal motion of particles in the water seen in frame-by-frame 4000 times enlarged video images. [x] is the mark on the particle with less movement.

[Thermal motion of the cluster of water on ice seen in frame-by-frame video image]

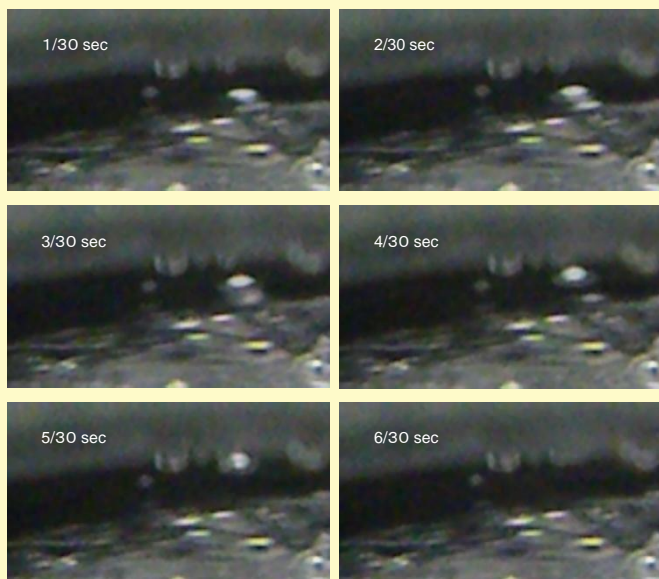


Fig.9 Thermal motion of the cluster of water on ice was seen as feeble shaded images in the frame-by-frame video image those were captured by a digital camera.

[Summary]

The hypothesis “the first organism was born as an organization of molecules by intermolecular bonding force in water” was inspected. Since molecules in liquid water form a linkage by intermolecular forces, there are organizational thermal motions. The mechanism of intermolecular bond is able to repair organization of molecules, and it can be extended. The extension is possible to form a replica.

[Reference] <http://www.youtube.com/watch?v=vfsosKCTuEY4>