



The Metastable Nanoparticles is the Basis of Life Nature

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Abstract

Investigated reactions at the moving liquid water, it is not molecules, but polymers that break mechanically to form various metastable nano-(M n) - particles.

This gives not only an increase in the $H^+ + OH^-$ concentrations, explaining the cause of previously incomprehensible electrolytic dissociation, also and radicals with high oxidation potential necessary for the life. The obtained results helps understanding of the processes in the blood capillaries – the main link of metabolism. The role of the movement is illustrated by example development of the buds.

Keywords: Mechanochemistry; Metastable; Nano; Hydrogen Bond; Radicals

Introduction

Just half a century ago, the main concern of material scientists was to obtain large single crystals of high-purity substances with a perfect structure. And today another restructuring of the targets is of interest to metastable nanoparticles [1].

(Gray, expensive friend is all theory Uinci gain of life goldner tree. Goethe-Faust)

Our ancestors respected Nature saw the facts and made wise conclusions that life arose in the water of the seas. But then they called themselves the chosen of by God invented the Torah, which knows everything. Without experimenting and studying the reality began to withdraw theory (Torii) and history (his Tory), to have the Nobel prizes and the high academic titles, broadcast that "Life is the mode of existence of protein bodies". The obscure word "life" replacing the more obscure "Mode of existence". Of protein bodies just incident. Jellyfish are living creatures, made up almost 90% of water. What remains on proteins in the presence of fats, carbohydrates, salts? The experience gave the conclusion: death is cardiac arrest, the blood, 85% composed of water, not protein. And pulse is

close to the oscillation frequency of the sea waves. In the search for truth does not need the Torah. Life is the movement of structured water - for both living and inanimate nature, it is one.

Methods

Material scientists obtained large single crystals of high-purity substances with perfect structure. But interest was aroused by the allotropic phase of the α Sn with a diamond-like structure of a narrow-band semiconductor with a covalent bond analog Si and Ge. To obtain the single crystal of α Sn was impossible: when α Sn to β Sn as a result of a radical overhaul of structures and the change of $s^2p^2 \rightarrow sp^3$, d Sn at $s^2p^2 \rightarrow sp^3$ drops by 26.6%, in a powder. But the understanding of semiconductors [2,3] Sn gave a way of synthesis of things with desired properties for a technical revolution of the XX century. The solution of the phase transition in a solid body under the Sn plague, which has terms relating to the living, again showed the similarity of the miracles of the living and inanimate, the unity of the nature of various phenomena, rejecting the opinion of M. Folmer, who said that for the emergence of a new phase in inanimate nature there is no need for the embryo [4]. Research β Sn \rightarrow α -Sn

proved: the seed is always needed and present, even if it is not visible and it seems that it is not. The division of natural science into a number of Sciences has historical roots, but it is also convenient for bureaucrats. However, there are always cases when research in one science allows us to understand the phenomena of other Sciences. Interdisciplinary "border incursions" not only show the unity of the laws of nature, but also give a new impetus even for the emergence of new fields of knowledge, Sciences, new practical achievements proved: the seed is always needed and present, even if it is not visible and it seems that it is not. The division of natural science into a number of Sciences has historical roots, but is also convenient for bureaucrats. However, there are always cases when research in one science allows us to understand the phenomena of other Sciences. Interdisciplinary "border incursions" not only show the unity of the laws of nature, but also give a new impetus even for the emergence of new fields of knowledge, Sciences, new practical achievements contrary to the fighters with "pseudoscience". An illustration of the view of the unity of nature are the mysteries of the "tin plague", its similarity with biological processes. This disease, and the consequences of the disease [5-7] (darkening and inaccessibility of the original d, the memory of the disease, "self-infection" without external priming [8], "aging" with memory loss, "treatment" with memory renewal, "recognition" of the contact of an inert substance [9] with the seed, infection at a distance [10], construction of a new phase of the bee honeycomb type by epitaxial phase growth on a structure similar to it by chemical bond, lattice parameters, coordination number (CN), [11,12] if the matrix is a metastable nano-size structure. Homeopathy is unacceptable for those who are accustomed to huge doses of traditional medicine. "Drive out like with like" - in "Faust" by Goethe spoke. And Hippocrates 2500 years before us said: "what can cause the disease, so you can cure it". To the same thoughts, 1,600 years after it came under fierce cleric Mahmud of Ghazni comprehensively by the great Avicenna, the poet, the doctor, genius 29 Sciences, philosopher, mathematician, musician, the ruined Khan, and in the 4th century Paracelsus in the medieval Inquisition. Fighters with pseudoscientists were always on the alert. Clearly, in the role of this fighters against pseudoscience themselves claimed and claimed religion, one with the authorities. After the bright revelations of her lies in the 18th century. It would be especially funny in the XXI century, when it was not so sad. Science, whose appointment was always a struggle with falsehood in any form, whose banner was always a struggle the struggle against falsehood in all its manifes-

tations, whose banner has always been the struggle for the ability to think independently, becomes a propagandist of religions in democracies. By the way, the word "democracy" is initially false: dem-os - people, cracy - power. There has never been and can never be the power of the people. The Torah teaches its adherents that they must own all finances, everywhere the power, but especially vital to have obedient means of information to fool masses, so they achieved a lot. The obvious similarities of the similarity of the phase transition with the phenomena of wildlife aroused the desire to know the nature and role of the mysterious (M n) particles that cause metal disease as human viruses. Not coincidentally, all the peoples were afraid of the comets. This is not an empty superstition, but long-term observations. After approach to Earth of comets observed is usually a unpleasant phenomena - especially often - epidemics. In cold Space, viruses remain in suspended animation. Getting warmth of the Earth's atmosphere and coming to life, and doing evil. Or and on plates species metastable phase. Long-term study of contamination showed that a significant role in the transmission of information from the seed to the tin play a metastable nano-particles of water in the structure of the I_c [11] with lattice parameters, chemical bond and CN are close to the structure of αSn . In this case, infection can occur even in the absence of priming, if the water is in motion [13-15] Understanding the role of water led to the decision to investigate the processes of blood movement in organisms at frequencies close to the frequency of oscillations of sea waves, as life originated in the seas. Blood on 85% consists of water, which can serve as an excellent model of the processes in living organisms. What cardiac arrest means the cessation of water movement we believe death of the body. In works [16-18] the results of the analysis of rain H_2O for the content of oxides were reported. In different parts of the United States, a content of S and N oxides is sharply different, which is understandable, determined by the production processes in different areas, but the content of H_2O_2 is almost everywhere constant, which the authors considered the result of the formation of peroxide in the absorption of oxygen in the vibrations of water particles in the clouds. It is not clear why the authors did not take into account that at the height of the O_2 content is small, industrial processes usually don't allocate, and consume O_2 and in the moving water of rivers, the content of H_2O_2 is also almost everywhere constantly, and in the river the H_2O is not fragmented into micro drops, and the H_2O does not have such a huge surface for contact with the O_2 of air, as droplets of fog in clouds. They believed that at the fluctuations of clouds O_2 of the air

with H_2O gives peroxide by the reaction $O_2 + 2H_2O = 2H_2O_2$. But, as shown by experiments [15,19], moving water gives metastable products and H_2O_2 , as well as ions of electrolytic dissociation according to the theory of Arrhenius, adopted without understanding the causes of dissociation at resistance of the scientific community of contemporaries. In the part about water, these processes will be covered in detail. While only mention that our results are in full agreement with the proposed Domrachevs idea abiogenic appearance of O_2 on Earth [20-22] from the mechanical effects of sound vibrations on water in their experiments also arose H_2O_2 and decomposed into $H_2O + O_2$. An interesting fact found in [23] is the change pH at shock waves by instantaneous Red-Ox processes, which are impossible without acidification of the solution. Authors these processes were associated only with the growth of water dissociation, was not knowing about the formation of Red-Ox products [13,19] during mechanochemical transformation of water, but only with dissociation. This once again shows the unity of Nature and its laws beyond its division into different Sciences. The calculations showed such a possibility [24,25] in large polymers of water without violating the law of conservation of energy when you break the "strong" ties low energies.

Experimental Results and Discussion

Part 1: Mechanisms of tin plague infection

Without accepting life as an absurd "Mode of existence of protein bodies" and knowing that death is a cardiac arrest, that is, the movement of blood, water by 85% and that the pulse is close to the frequency of oscillations of sea waves, where life on Earth arose, we dare to believe that life is the movement of structured water. but it all started with the study of processes without atomic contact of seed and βSn with s^2p^2 in the transition to the semiconductor αSn with sp^3sp^3 electrons. Polymorphic $\beta \rightarrow \alpha$ to another phase of transformation going after the T phase equilibrium. Solid melts, a liquid evaporates. The transition of atoms in a solid is hindered kinetically. This move requires priming with similar structural parameters, a matrix that is able to build sustainable under the new conditions the phase. The contact of the matrix with the object must be atomic. On the matrix can be built αSn . Experimentally, this is achieved by pressing the seed into Sn, because Sn is always covered of a protective film of dioxide. The people notified a mysterious of unknown infection Sn "plague".

This is allotropic transition разных по параметрам βSn (Figure 1, CN=6, $d=7.3$) to αSn , (CN=4, $d=5.77$ Figure 2) So d decreases by 26.6%. What forces can stretch the atoms to the sides, especially when lowering T? No imagination can predict this. And the reverse transition to the compression of the material is at a pressure. And easy when heated. In αSn directed covalent bonds that require to overcome a problem $s^2p^2 \rightarrow sp^3$ of transition. And $\alpha \rightarrow \beta$ to spherical symmetry is simpler. This is clear and seen when comparing the types of structures, lattice parameters, CN and d in metal βSn with spherical symmetry of bonds (Figure 1) and CN=6. But αSn has covalent bonds directed to the corners of the tetrahedron and CN=4, (Figure 1,2).

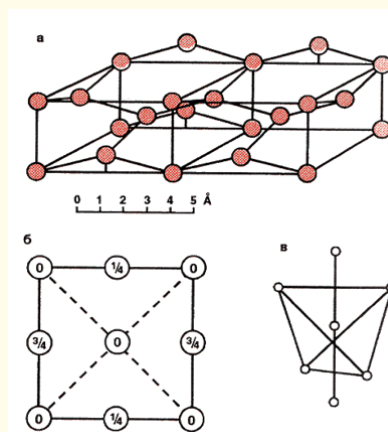


Figure 1: βSn . $a = 5.83 \text{ \AA}$, $c = 0.545 a$ Each atom of the 4-neighbor distance of 3.03 \AA and 3.18 \AA ; CN (coord. Number= 6. a: cell; b: the projection to plane (001).

At low T stable αSn , $d=5.77$. Volume effect turns Sn to a powder. Without of the seed even at 4.2K αSn (Figure 2) doesn't get, although the equilibrium $T=+13.2^\circ C$.

Features of the same with phenomenally stable diamond metastable structure. With structures difficulties of solid-phase transitions, volume effect, change a chemical bond. In the drawings is seen th at αSn as if (Figure 2) squeezed, atoms shifting and making it more dense β phase. Pressure translates αSn to βSn . Transitions by the change of electronic $s^2p^2 \rightarrow sp^3$, metallic to covalent and back, gives a pure powder.

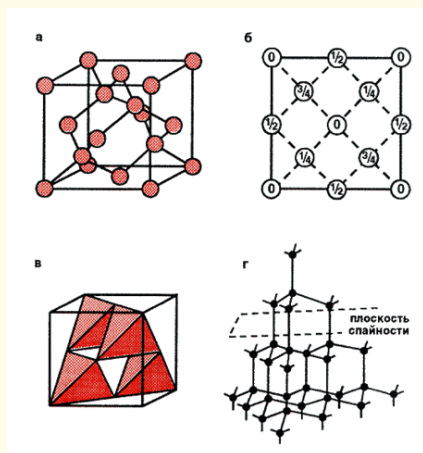


Figure 2: The structure of α Sn (diamond).

- a: unit cell;
- b: the projection on plane (001);
- the tetrahedra, at the vertices and center of their atoms Sn;
- a = 6.46 Å.

Contrary [4]. without priming the process does not go at the lowest temperatures T. "Spontaneously" inanimate β to α occurred in real environments, where is many unknown to observers of particles, giving such a matrix, but it is not clear, what matrix and how to give infection in those mysterious cases. On idea N.A. Goryunova [2,3] of elements of group IV of the Periodic Table have isoelectronic counterparts, where each atom has 4 electrons. They have a diamond-like structure of sphalerite (S). They are analogue of semiconductor Si, Ge, and α Sn, that it confirmed. And the semiconductor InSb, its stable analogue with diamond-like structure, valuable semiconductor with helpful unique properties. Isoelectronic counterparts gave birth to double, triple, quadruple etc compounds with desired properties, sphalerite similar to diamond, only different atoms alternate in it, keeping CN=4. In atoms are surrounded by 4 atoms Sb, and Vice versa, so that each atom has 4 valence electrons. (Figure 3) For α -Sn from β Sn transformation there α are centers and on the basis of CTe are similar to the α -Sn chemical bond, structure, parameters, and the minimum distance between neighbors (unlike α Sn there different elements) but as a diamond lattice, is $\frac{1}{4}$ of the length of diagonal. Isoelectronic counterparts gave birth to double, triple, quadruple compounds with desired properties, sphalerite similar to diamond, only different atoms al-

ternate in it, keeping CN=4. In atoms are surrounded by 4 atoms Sb, and Vice versa, so that each atom has 4 valence electrons. All similar to the α -Sn chemical bond, structure, parameters, the minimum distance between neighbors (unlike α Sn there different elements) but as a diamond lattice, is a $\frac{1}{4}$ of the diagonal length.

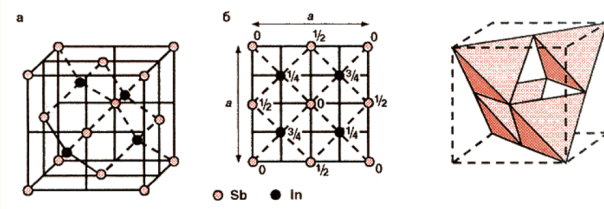


Figure 3: Sphalerite InSb, CdTe, AgI, a: cell; b: the projection on (001).

All the nearest neighbors by period – analogues of α Sn in the parameters. Lattice constant a is almost not distinguishable. (a at a Sn = 6.489 Å, at InSb – 6,478, CdTe – 6.41. Ic – 6.36 Å (about metastable Ic as the most important structure in many processes of Nature will be discussed later). In β Sn they so give rise to structure of α Sn. "Re-forming" is the transforming to powder all excellent product from Sn. Embryos in inanimate Nature is necessary too, When pressing seed with similar parameters atomic contact arise, Sn for 10^3 s becomes infected during cooling. Sn has a dioxide protective layer nano defects inaccessible to InSb pieces, etc. These primes, put on β Sn, do not infect it Sn in vacuum and under solvents too. But in the air they infect through 10^4 s, so means that there are particles in the air that can build up in the structure of the seed and reach β Sn through the defects of the film available to them. Filling the ampoules with gases found that the infection occurs only in the presence of water vapor metastable structure close to α -Sn. – that is the I_c [1,2]. It became clear a infections with an inert body [9] were in contact with the seed and kept the I_c (probability of 90%,) or at a distance from the seed for 3×10^6 s. [10]. There are also required priming and vapors for the I_c structure. Without any of them, there are no infections, except for the surprising special case where the infection can occur for a very long time if Sn was under the water at its constant movement. So revealed the amazing role of metastable I_c , a new self-priming of the desired structure of nano-water particles that can penetrate to the metal through microdefects of

dioxide for a period of about a year. Staying in still water does not give infection. The mechanism of this fact will become clear after the description of mechanochemical processes of liquid water polymers in part 2. Examples (Figure 4) show the unreality of self-contamination.

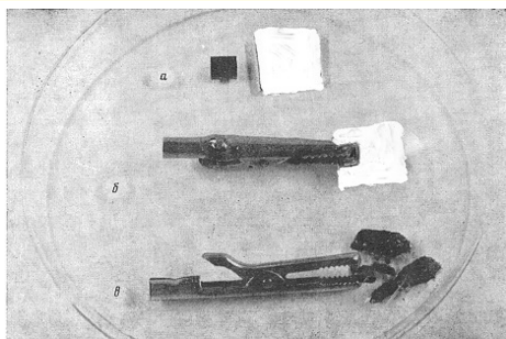


Figure 4: a) single crystal plate ISb and Sn; b) a sandwich of them, placed in evacuated ampoule in the fridge - there is no infection within 6 months; c) when opening ampoules per day Sn and blackened, and crumbled, going to α Sn of the vacuum of $10^{-6} - 10^{-7}$ Pa.

Make sandwiches of Sn/ISb [15] (Figure 4), Water plays the role of the seed! Always of infection was in the air. Perhaps it is hidden in the solution? To study the influence atmosphere β Sn is placed in ampoules, create a infection occurred if the vacuum in the vial (Figure 5) contribute a piece of ice. Vial to study the effect of ozone is irradiated with UV from a mercury lamp. All experiments was conducted on 50 samples, control samples of at least 10. 1) In a vacuum of infection no for 6 months. After the inlet of the ampoule to air contamination occurred quickly everywhere. 2) In like 1 evacuated ampoules injected pure oxygen. Infection for 6 months didn't happen. 3) UV (O_3) also not infected. 4) Water makes contact to the seed [13-15]. How? There is a metastable structure Ic [12] with parameters close to α Sn ($a=6.36 \text{ \AA}$). This idea suggested to us the expert of structure N.A. Bulyonkov Natural seed! Without it we can't know about the tin plague. Apparently, in the cases of "self-generation" vapor pressure of H_2O , T, P have been suitable for the creation of the Ic structure. And it all happened without any miracles. Interestingly, if In Sb dipping for a few seconds in the water vessel with ice, where the water still retains short-range order of

usual hexagonal ice, and is in contact with the β Sn be placed in the cold, infecting of β Sn will not. In a presence of conventional ice congenerous couples in a stable structure, the infection will not let and long stay in contact with the seed cold. And just water will not catch - it will freeze faster than will work any seed. If these sandwiches to soak in a warm to dry, then cool down, contamination will occur as usual at 100%. Ic structure is valid. If was not removed solvents such as alcohol, acetone, water or removed by vacuum or sinks of water in the desiccator, where the nano particle not to exist.

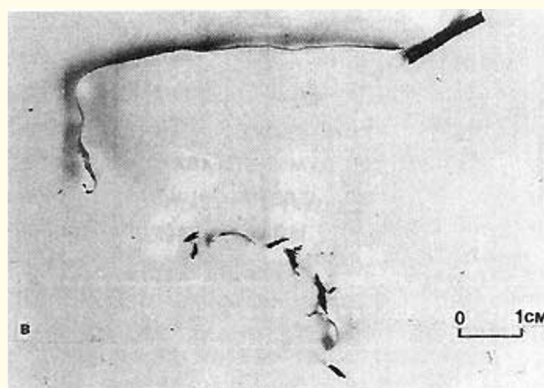


Figure 5: Quenching β Sn leaves intact, even bent by force (on top). But crumbles if pre-anneal (below).

Contamination of the thin single crystal is not scattered it into the powder and rolled to spiral with the same relationship of curvature with a thick "moustache". Spiral has same relationship of curvature with the thickness of the "wisker" (Figure 5) Thick crystal, even obtained electrolytically, by infected crumbles too. Not so occur with the hardening of tin. (Figure 5) Fast tempered β Sn is not scattered, keeping the filament form, even curved. After annealing the sample crumbles like other samples. Tempered not β Sn crystal and glass structure. With annealing, the atoms fall into place, the infection is familiar. An interesting example of a close with an explosive

InSb. In extremely cold under pressure he was transferred to tetragonal metal. When thawing it is returned with the explosion in the covalent structure. This is the any phenomenon of quenching of nonequilibrium phases like "the Batavian tears". Drops of molten

glass in water instantly takes the form of tadpole. The melt solidifies in a closed volume and creates high pressure inside the drop, and fragile glass, even a hammer blow is not split. If the tail of the tadpole to break, he would fly away from the explosion of a bifurcation surface. "Infecting" the delays from the edge, easy to observe the kinetics of $\beta \rightarrow \alpha$ transition.

Studies of the mechanisms of contamination and behavior of impurities have given a number of useful processes for high purification of tin, obtaining single crystals of the desired shape of the α Sn and the creation of p-n, by a simple available method of analysis of pure of β Sn, but this will lead far from the main topic of the article. We restrict the reference to methods of obtaining pure powders β Sn different purposes.

But there is still a mystery – the presence of memory Sn about his stay in the α Sn. After first $\beta \rightarrow \alpha$. repeated infections without external priming. Phase transitions. back and $\beta \rightarrow \alpha$ forth goes for 100 s or faster. Over time, this memory weakens and disappears "from old age". Its jsecret understood [8] wise Mendeleev long before works Goryunova [2,3]. Mendeleev noted that if the tin is crushed and poured with a solution of β Sn in HCl, then its transition to α Sn occurs relatively soon. The action of solvents is known. It was believed that the acceleration of the transition was due to the removal of the SnO_2 layer. Also accelerate the conversion of radiation, blows, destroying SnO_2 film, or by irradiation with neutrons, ultrasound, etc. Everything connected with the growth of defects in the film. But without the seed there is no infection. Mendeleevs idea: the action of HCl in LIQUID H_2O formed compounds of Sn(II), which by hydrolysis give active SnO according with the reactions: 1) $\text{Sn} + \text{HCl} = \text{SnCl}_2 + \text{H}_2$; a 2) $\text{SnCl}_2 + \text{H}_2\text{O} = \text{SnO} + 2\text{HCl}$, leading to infection. SnO. This metastable phase was epitaxially created on α Sn and closed its parameters, plays the role of the seed. Test ideas: if infect a Sn on the one hand in the air and, remove the seed and the part of Sn that was with it in contact,, pump out to vacuum $10^{-6} - 10^{-7}$ PA, heat for α Sn \rightarrow β Sn, and then cool, β Sn \rightarrow α Sn will occur rapidly. Repeating the transitions to β Sn, then a β Sn \rightarrow α Sn etc, it can make the purest powder β Sn of any dispersion, changing the number of transitions. SnO unstable, disproportionate reaction $2\text{SnO} = \text{Sn} + \text{SnO}_2$ remove SnO? And repetition of $\beta \rightarrow \alpha$, $\alpha \rightarrow \beta$, etc stoped. But transitions in air O make up replenish for the loss of SnO, making longer a pure powder of any dispersion. About other applications $\beta \rightarrow \alpha$ for any purposes in Part 3.

Part 2: Mechanism of mechanochemical processes in water

The appearance of O_2 on Earth was a consequence of the decisive role of water movement in the life of Nature [23], and not as a result of photosynthesis by a "green friend", which is taught in schools, obviously, at least from the fact that O_2 was already needed for the formation of plants. In the Earth's atmosphere at its formation from space materials O_2 was not. In excess of H_2 at high T O_2 could not exist, gave water. Not to mention the negligible areas for plants and dependences on the time of year, day and return at the death of the plant CO_2 and consumption as much O_2 how many allocated during life. In cold Space H_2O covered all Earth's surface with a great layer of ice, and about the appearance of life was out of the question. But in the bowels of the Earth were high-T processes [26], a variety of hot products of volcanoes released into atmosphere and created a 'greenhouse ' effect. T atmosphere grew, ice shell melted, oceans of liquid water with constant movement of energy from Space GIVES O_2 . The moon creates tides, the Sun – the thermal currents of the oceans, local temperature changes create rains, snow, the movement of waterfalls, rivers, avalanches. Stars creates a constant movement of waves. Water isn't just a medium for the chemical reactions of substances, as it is convenient to fighters. with "pseudosciences". Water too is the stuff, reacts, so cause mechanochemical processes, for example. Such processes give abiogenic replenishment of O_2 proved by works [19-22,23,25] Atwavering, calculations show the possibility of breaking the bond between O-H, giving radicals [24], that is, the possibility the existence of a hydrated electron in water [25]. Fighters was TAUGHT in SCHOOLS, other, they wise, all know always. Having the power together with colleagues-corrupt officials, they deny the facts which didn't know earlier, didn't want to know facts. Liquid water is the H_2O molecule, from spectra in the gas it is known that the O-H bond strong, and the some polarity adds to it the strength of the ionic bond by 10%, hydrogen bonds always negligible. This is true for single gas molecules. But not truth for condensed phases liquid water and ice. They even heard that water is a abnormal stuff due continuous deviations to the properties assigned by theorists in the ranks of analogues. It is clear: oddly. But it's more like anomalies in their mind, which stamps of the theory of gases relates to polymers. What is true for single molecules can 't be right to condensed structures collected in polymers by hydrogen bonds, which can to be there strong So is not satisfactory theory of liquid water, if fighters without shame repeat that learned in schools, not pay-

ing attention to the facts. It is strange that adopted the theory of electrolytic dissociation of Arrhenius water with the understanding how eat Ostwald supported. Liquid water at T room constantly in motion temperature fluctuations, it wrestlers couldn't know, and so understand the dissociation from mechanical influences. Our ancestors understood that. They took flint stones with very strong bonds between the Si atoms and blow them off each other carving out the sparks for the ignition of the fire. Fighters know the legend that Prometheus gave them fire from the gods, Not tearing of strong Si-Si don't violate the theory and the Torah. Now all ou can and should steal – otherwise there would be no oligarchs, democracy, capitalism. Only don Quixote seeks truth, so laugh him.

Experiments, facts teach even under corruption, but not all. Water plays a role unusual in the life of the Earth, covers 71% of the Earth's surface. Organisms up to 60-90% consist of water, while not being a liquid. In the seas there are many dissolved substances. They liquid. The waters of seas, oceans, rivers, waterfalls, clouds lakes, glaciers etc are constantly in motion. Life originated in the water of the seas, it is no accident the pulse rate of living beings varies about 1 Hz, the frequency of waves. In youth I always went to watch Ladoga ice drift on the Neva. Masses of ice were cramped, they were in the form of vertically protruding boulders noisily rubbed, and the enchanting spectacle was easy to breathe. That this forms O_2 and O_3 , it is clear now, I wanted of the ice drift to measure on the beach and in the distance the concentration of O_3 , but long ago by command of new rulers began to blow the ice still on the lake. Now a small ice floes without mechanical stresses deprive citizens of beauty and air, beautiful for life. Knowing that onset of death is considered cardiac arrest and blood movement in capillaries, not available photolysis, believing the decisive factor in life is the movement of water, we studied mechanochemical processes in water at 1Hz and near [27-30].

Each splash stimulus is ΔE of the indicator electrode, falling to almost the original value by the next impulse. The glass electrode reacts to changes in the concentration of H^+ ions. With the growth of shocks, pHmetr records the accumulation of H^+ With the growth of dissociation, the concentration of mechanochemically generated ions increases - the same water dissociation as understood by Arrhenius, occurs from the mechanochemical rupture of O-H bonds at polymer collisions with the unification of all local energies into a single system, for it the energy loss at the break of a

separate bond is invisible. After 10 minutes of manually swinging of a water in the pH meter has changed from 6.7 to 6.3, that is mean, the concentration of H^+ increased from 2×10^{-7} to 5×10^{-7} , that is, 2.5 times. Each shake stimulus ΔE of a indicator electrode, falling to almost the original value at a next impulse. The glass electrode reacts to changes in the concentration of H^+ ions. With the growth of shocks, pH metr records the accumulation of H^+ ions. With growth of dissociation, too the concentration of mechanochemically generated OH^- ions increases. It is the dissociation understood by Arrhenius, occurs from the mechanochemical rupture of O-H bonds at polymer collisions with the unification of all local energies into a single system, for which the energy loss at the break of a separate bond is invisible. After 10 minutes of manually oscillations of the water in the glass has changed from a pH 6,7 to 6.3⁻⁷.

Reviewer-wrestler declared that he is able to change pH by another ways, clever, and about changes E at hashing "it is known from school textbooks of "ectrochemistry"! There ΔE occur from changes in the concentrations of dissolved foreign ions in the water at the near-electrode layer. Water has no extraneous ions, and as its not stirred, always in near-electrode layer is just water and ΔE [23,27-30] prove going in the water by mechanical action processes. But too clever the editor is not answered, and I after then to this prestigious journal nothing else to write. They would be first who need pay attention to a miracle not previously known and considered as impossible. And a such reviewer of a such journal said: "this is the electrochemical TRICKS of the ELECTRODE". The expert of Tricks declared that if O_2 and H_2 from moving of water, happen, in the atmosphere it would be full of H_2 . The editor's consultant, he does not even know that in the mountains when climbing up there is a lack of O_2 but a very light H_2 flies to the upper atmosphere. Didn't touch them comparative results of the experiments under the same conditions and fluctuations of water in a absence and in a presence of the electrodes, catalyzing the reaction $O_2 + H \rightarrow H_2O$ and to it indifferent. The value of ΔE in the absence of electrodes was the greatest, and in the presence of electrodes Pt group = minimum! Any electrodes only catalyzes a reverse process of recombination of obtained by mechanochemical decomposition of water products. Well, that now there are no fires of the Inquisition, but to those who seek the facts against the tenets, replacing fire by humane guillotine of kind Jacobins. Not finding a place for the whiz radio to O. V. Losev in PTI, then forgetting to give him Lunches in the siege of Leningrad, the place of his burial, and lost works of whom remem-

ber the world is calling "glow Losev". Mendeleev was preferred to Beilstein by a double voice of the expert of chemistry of Admiral F. P. Litke, Only L. Pauling wrote a letter to Domrachev supporting his idea, but Pauling himself was scolded for the resonant equality of relations of bonds C - H and C=H in benzene. The current wrestlers not Ostwald or Mendeleev now authority Einstein, Solzhenitsyn etc. Who survived Napoleon and Hitler, that survive of them patiently and unpretentiously.

In [27-29] the results of measurements of E indicator electrodes at water vibrations of different types are described and shown. Mechanical shakings cause the processes of formation of water decomposition products, and the cessation of oscillations gives relaxation E almost to the initial state. That the reaction products are ions from water dissociation and radicals giving Red -Ox products, including **числе** H_2O_2 , necessary for life processes and for O_2 replenishment of the atmosphere. It is shown that the processes are mechanochemical, and go without electrodes, and "things" only as indicators of changes in E fix the presence of accumulated products after the end of the processes. It is shown that without electrodes the process is more active, and in their presence there are less products, the electrodes even catalyze the relaxation of the products arising from water. **Но ни и проверить электрохимические «штучки», ни просто качанием стакана воды увидеть изменения pH борцы со лженауками не отважились.** But neither the and test electrochemical "stocky", or just swing the glass of water to see changes in pH fighters ventured, so know: experiments refute believe, so DO NOT PRINT!!! At Figure 6 one see ΔE of Pt electrode from 1 shake in different solutions.

With the same tremors, the energy of the oscillation creates changes in E water, and ΔE total (1) shows the total change E from the appearance at decomposition products of water at 1 shake. ΔE radical, (2) arises from radicals, since at high acidity the increase in the concentration of H^+ is negligible. And ΔE ionn (3) originated from the H^+ concentration. At big concentration of Red-Ox matterone ΔE from changes in the concentration of radicals is negligible. (4) background E of water from temperature fluctuations, -and (5) background with an excess of injected substances. It is seen (figure) that the total $\Delta E(1) = \Delta E(2) + \Delta E(3)$, and $\Delta E(2) = \Delta E(3)$, within the error of experience. I s shown for clarity all ΔE from 1 shake. It follows that unlike gas in liquid water, there are no differences in the binding energy of covalent/ionic. Repeat aftershocks simply reproduce such curves with gradually growing E water

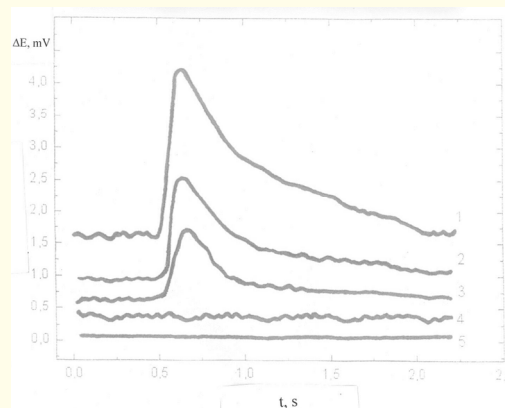


Figure 6: ΔE Pt electrode in time with a single push of the container of water at a frequency of 1 Hz Curves: 1) is the water clean; 2) to the water added with HCl to pH=3; 3) to the water added hangeron; 4) background clean water without shake, shake close working installation; 5) the background of water with such additives hangeron and HCl to pH=3, with a shake of the vessel.

Movement of the desired frequency created by the dispenser or relay. Record E was conducted continuously by the recorder at the scattered light in a constant direction of movement of water.

Hydrogen bonds create three-dimensional polymers with all the same bonds Thinking little, believing much more. For benzene, NMR resigned to the 1 type of bond, and not 2 (C-C and C=C) as F.A. Kekule drew, and that all bonds are the same in polymer water, can not be tolerated. And in liquid water NMR gives 1 type of O - H bond in peptides, keto-enol tautomerii ketone and enol bonds are equivalent in one molecule. But, FOR believing "If the facts do not climb into the theory, the worse for the facts". On the mechanochemical tearing to pieces their bonds of ordinary polymers know That strong bonds Si-Si are torn at impact, they fly off hot sparks without violating the law of conservation, and so the ancestors produced fire. Mechanochemical processes in water near 1 Hz were studied. Each shake stimulus ΔE of the indicator electrode, falling to almost the original value by the next impulse. The glass electrode reacts to changes in the concentration of H^+ ions. With the growth of shocks, pH meter records the accumulation of H^+ With the increase of dissociation increase the concentration of OH^- ions resulting mechanochemical of the same dissociation of water understood by the

specific rate constant derived from the mechanical break ties O-H by the collisions of the polymer with the Union of all local energies in mechanochemical processes in water at 1 Hz were studied.

Mechanochemical processes in water at 1 Hz were studied. Each push causes ΔE , falling almost to the initial value of E to the beginning of the next push. After of 10 minutes of manually shaking the pH of the water in the glass changed from 6,7 to 6,3. $[H^+]$ increased from $2 \cdot 10^{-7}$ to $5 \cdot 10^{-7}$, i.e. 2.5 times. After stopping shaking of the water, the pH goes to E stationary at a given T of the oscillation energy. The needle of the pH meter also slowly moves back and after 10 minutes the initial pH value comes. The glass electrode responds to the concentration of $[H^+]$ but can affect the composition of the glass adsorption and E in this regard. To make sure that ΔE notes ΔpH was measured with hangeron electrode. The results showed changing $[H^+]$. And except for $[H^+]$ may be still other processes [16-18], H_2O_2 founded in the rain water, as the authors believe, due to dissolution of O_2 in oscillating clouds. This is strange, because at an altitude of O_2 is too small. But check need to. And measured a changes just in pure water on Pt electrode. With an increase in the number of pushes pH meter fixes the accumulation of $[H^+]$ The concentration of OH-ions is also increasing. This is a dissociation from the breaking of O-H bonds. And measured the changes simply in clean water of Pt electrode, taking measures to remove O_2 from the water and securely seal the shaken vessel. It turned out that the E of electrode changed, but not as hangeron electrode, and stronger, which suggests that in addition to dissociation of water when the fluctuations are still, apparently, Red-Ox processes. And that authors [16-18], apparently, made a mistake in the interpretation. In any case, it is very interesting is the essence of the process going with moving of water at room T. The reviewer rejected the results, being able to change the pH otherwise, and about of ΔE at stirring electrolytes know from school textbooks. Editor of the prestigious journal didn't know what ΔE occur from the change of concentrations strange reacted ions.in a near-electrode space. But the water has no such ions, no matter how much it is shaken, only water is in the near-electrode [23,27-30]. This testifying to the substances that have arisen. But servicers learn:if in the gas, so in liquid (water) and in solid (their brains) forces ties of O-H, Easier, better don't pitch it to print, to draw attention to newsfact which considered impossible.

At the jolts of same energy they creates a change E of water, and ΔE common (1) shows the change from the occurrence of water

decomposition products. ΔE radical, (2) arises from radicals, ΔE ion, (3) arises from ions. From experiments ΔE radical (2)= ΔE ion, (3) and it follows that they together gives ΔE common, (1), that indicates the absence of more products. Repeating shocks reproduce curves with gradually growing E from added products that didn't have time to recombine. Shocks of the desired frequency was created by a doser or relay. Recording of E was conducted continuously by the recorder at weak scattered light at constant direction of movement on the earth's magnetic field, so that a different magnetic field would not affect the process. In the liquid, the molecules are close each other. Small the size of the atom give to create a strong homogeneous connections that create a three-dimensional polymer average properties, in particular, with the equality of all relationships O H that show data figure 6 confirms by NMR. "If the facts do not climb in the theory, the worse for the facts". About mechanical disconnects in conventional polymers know. That strong ties Si-Si are torn at blows, from them fly off hot sparks without breaking the law of conservation, knew ancestors, extracting fire. Polymers of water provide the chemical products of their breakup, and especially fragments, are necessary for life and for the size of the atom give to create a strong homogeneous connections that create a three-dimensional polymer average properties, in particular, with the equality of all relations O H. In liquid water, so molecules are close to each other, and each molecule can give up to 4 bonds [31,32] with neighbors, being both donors and proton acceptors at once and reach micron sizes [33,34] and even be observed visually as pollen particles in Brown's works. Experimental facts lead to the recognition of liquids to amorphous bodies closer than gas. In three-dimensional structures with directed shortrange covalent bonds, not with non-spherical long-range Coulomb forces. Differences in the properties of the surface and volume of the polymer lead to the additivity of the energy from the composition, localization of the reactions of the near order. Polymers are like amorphous bodies where they are not torn. Any shift in the buildings leads to breaking ties. When not divided pairs of electrons of an atom O the short-range order of structures in the polymer determines the tetrahedral environment of atoms O, enables it to have CN=4. R. L Muller [37] for such amorphous bodies gave a definition of "structural element", suitable for polymers $(H_2O)_n$, creating glass-like meshes of such fractals with short-range covalent bonds. At $n > 8$, the discontinuity 1 of the bond on the energy of the structural element of clathrate does not affect Historically at first appeared the theory of solutions by analogy with a gas without a structure. Infi-

nately dilute solutions they are fit, is the real concentration of the introduced activity. It is easy to calculate from the ionic strength of the Debye-Huckel, not p. Any shift in the buildings leads to breaking ties. When not divided pairs of electrons of an atom On the short-range order of structures in the polymer determines the tetrahedral environment of atoms O, enables it to have CN=4. R. L Muller [37] for such amorphous bodies gave a definition of "structural element", suitable for polymers $(H_2O)_n$, creating glass-like meshes of such fractals with short-range covalent bonds. At $n > 8$, the discontinuity 1 of the bond on the energy of the structural element of clathrate does not affect Historically at first appeared the theory of solutions by analogy with a gas without a structure. Infinitely dilute solutions they are fit, is the real concentration of the introduced activity. It is easy to calculate from the ionic strength of the Debye-Huckel, not not contradicting physical sense. Water is a weak electrolyte, $H_2O = H^+ + OH^-$ f activity 1, $[H_2O]$ is const, $[H^+]$, $[OH^-] = 10^{-14}$ (that is = K) Distribution of Boltzmann for gap 1 from the Association of the molecules need energy of all the molecules has proven it by fluctuation that is incredible. The water at small distances between the atoms of the big d that does not seem to contradicting physical sense. The water at small distances between the atoms of the big d that does not seem to Gas. Application of the theory of absolute reaction rates absolute doesn't agreement with the experiment. Model similarity of water crystals with long-range interaction at the Sommerfeld with the socialization of the electrons to zone requires amendments, not remotely common-sense. Thus, the effective mass of an electron can become negative for the convenience of calculations, and the free path is less than the size of the atom to become. There is no solutions to the Schrödinger equation for long time, so we have to use reliable structural models of chemists. Atomic-molecular representations of models of chemists. Atomic-molecular ideas about mechanism of interaction of substances will not replace Phenomenology [38]. (L. Pauling). And the experiments give the atomic - molecular mechanism of electrolytic dissociation and mechanochemical processes from weak influences. And about hydrogen bonds, nano polymer particles without incredible fluctuations and negative masses. Clear rejection of works by eminent theorists. Theory is dead, but the living Nature and the living and non-living, in spite of the strides of progress in its destruction. Facts are stubborn. Sometimes they make their way to those who can think. Or it is unclear by who lost as works of O. V. Losev or what is also the young genius e Galois, not put into print with a review of Poisson uncertainties of work. War.

No co-authors have Losev means bad character for Ioffe. Revolution and duel Galois. Freedom of progress. For lies. It is unclear who or lost as works of O.V. Losev or also the young genius E Galois, not put into print with a review of Poisson as "uncertainties of work". War. No co-authors have Losev – so means bad character for Ioffe. Revolution - and duel E Galois.

Part 3: Metastable nano-particles in inanimate processes. Mechanisms for the production of metastable nanoparticles (M n.) $\beta Sn \rightarrow \alpha Sn$ for practical purposes

Obtaining unique substances

(M n) are often in nature and use in science and engineering They are States nonequilibrium thermodynamically. The laws of nature are always fulfilled. One of the reasons of deviations from the laws of thermodynamics is kinetic difficulties. If the movement of atoms in gases and simple liquids, the solid is difficult. Atoms must overcome the resistance of a strong close structure. Overcome the activation barrier to build a new structure. The seed, the matrix, creates a foothold for the new phase, and the process can go on. The observed "spontaneous generation" of even snowflakes is facilitated by the abundance of dust particles. For good weather, the sky was shot with Ag^+ and J^- ions in foggy England. $Ag J$ is the analog IC semiconductor $A^{1B}7$, structure S, the center of the Ic condensation to precipitation of the fumes. The world is full of M n, One of the reasons of deviations from the laws of thermodynamics is kinetic difficulties. If the movement of atoms in gases and simple liquids, the solid is difficult. Atoms must overcome the resistance of a strong close structure. Overcome the activation barrier to build a new structure. The seed as matrix, creates a foothold for the new phase, and the process can go on. The observed "spontaneous generation" of even snowflakes is facilitated by the abundance of dust particles. For good weather, the sky was shot with Ag^+ and J^- ions in foggy England. $Ag J$, analog I_c semiconductor $A^{1B}7$, structure S, as the center of the Ic condensation to precipitation of the snow or rain. The world is full of M n, So you have to know them. Having understood the role of M n I_c particles in Sn infection and memory creation, we were able to perform a number of useful syntheses: and high-purity Sn powders without the use of traditional ways of grinding and spraying, which external devices introduce impurities. At low T and the repeats themselves $\beta Sn \rightarrow \alpha Sn \rightarrow \beta Sn \rightarrow \alpha Sn$ etc are simple, and the gives desired dispersion [39-47]. Created methods with the using of a water [15] the creation of single crystals of

α Sn a predetermined shape and with p/n transitions; And deep band solid-phase purification [50]; and purity assessment without liquid helium [51]. At action of M n particles it possible to obtain even phases unknown to the nature. Compounds A^3B^5 , A^2B^6 , have the structures of sphalerite S and wurtzite W, and CdTe with has no W of important properties. And CdTe metastable W structure was obtained by hot dissolution and rapid cooling [52,53] at high supersaturation. Electrolysis with high current density soluble $SbCl_3$ obtained pure amorphous Sb. It does not contain chlorine, as for many years it was believed for interpretation its explosive. A thin layer of amorphous Sb can be made by vacuum spraying onto a cold substrate from a remote crucible. Debaegram of her oily brown spots indicative of amorphous Sb, passing abruptly to brilliant stable layer when it reaches the thickness. If there is a matrix for M n particles, metastable structures are built on them, live long, and grow, like in infection at a distance and from an inert body that has been in contact with the seed. Similar processes in inanimate nature and in living. In water with hydrogen bonds, creating polymers, their mechanical destruction gives metastable products for the construction of new cells on the matrix of organisms. Like of α Sn, they grow according to a given program. In humans – human cells grow, jellyfish its cells, although the water is the same. Life has the principle of similarity to the inanimate and Vice versa. So Process β Sn \rightarrow α Sn named as “plague” to interpret in terms of the living: infection, disease with it, consequences, communication, memory, it loss, aging, recognition. There are no self-infestations in living and inanimate nature without primers, though analytically even elusive M n particles in homeopathy; embryos in life; similarity gives a new phase in a solid. The need for seed confirms the unity of the laws of Nature. Similar examples in Geology of the Earth. Waterless Sahara greatest desert prior to the invasion of people was a flourishing land, fresh water and flora and fauna in abundance, which is proved by researches of the Earth. “Well and built a beach”, – just kidding tourists. Before our eyes, the Aral sea, the 4th largest lake in the world, died recently at perestroika- “rebuilding of country” Disappeared fish. In the Sands of the new beach rotting ships, victims of progress, democracy. When the promise of life improvements that’s never good. The power of the Winners of the brown plague was quickly killed to please the cowardly deserters. Now they are heroes. Only let them remember: Nature does not forgive.

Part 4: Metastable nano particles in the Nature

As for non-living objects, (M n) particles work on living organisms matrices. In the amorphous structure of water mass m n places, when breaking the polymer there are gaps, so M n parts protected. Is shown the shaking of water with frequencies of near one Hz causes effects resulting in periodic growth of concentration of protons and other products with higher positive potential, that is substances necessary for vital functions of living. The obtained results assist understand of processes in blood capillaries, most important in metabolism. In addition, experiments on the role of nano particles of water polymer decay products, which play an important role in a variety of natural processes, At moving of water eager communication O:H as a section of a pair of electrons on the ions so as to divide it into the radicals O^* and H^* giving products life of Nature with treating. The behavior of water during its moving by shaking showed this effects by periodic growth of H^+ for information and Red/Ox products necessary to living especially. This allows to explain stable differences between living organisms using principles of moving water on lifeless. Life is movement of structured water – for both living and inanimate nature. Based on the principle of similarity, the model of processes in organisms is a concrete expression of the essence of seemingly different phenomena. The role of M n structures with allotrope Based on the principle of similarity, model of processes in organisms is a concrete expression of the essence of seemingly different marvels. The role of M n structures in allotrope β Sn \rightarrow α Sn based on this mechanochemical water decay, so much that a metastable phase is living, growing, not destroyed, giving epitaxial growth of a new phase. And the processes in moving water occur not only in the heart, but in the capillaries, where the blood circulates. Herewith plays in all functions of any organism a vital role. It provides metabolism in each cell, so it provides a source of H^+ for ion exchange in membranes. So on a solid/liquid interface water doesn’t contain dissolved matters [54], a H^+ ion conductivity here is provided by ordered distribution of hydrogen bonds in 1 dimensional water chains the Bernal- Fauler threads. Protons are transferred along the chain in form of H_3O^+ and OH^- ions and the Bjerum defects. Transfers of the local compression and decompression of proton subsystem are described by a soliton –type single wave model [54-56]. Hydrogen bonds allow gives from water polymers and the channels of proton conductivity between them. Disturbance of the blood circulation causes patholo-

gies in whole organisms and collaps with stopping of all vital processes. Coordination functions of the whole organism are associated with moving of blood, That in is mean – with moving of water, so –M n particles are effects of formation of substances necessary for living functions. The processes studied in the movement of water make clear a role of blood circulation in the branched network of capillaries. In 1 millymetre³ of the muscles of their 2000, they passed through each capillary blood is in contact with 0.5 m² of the surface of the walls, their system of hydrogen bonds provides the body with information through proton conductivity with long-soliton migration energy. Extremely weak effects used in Oriental medicine are extremely effective due to these effects. Effects on skin areas far away, their system of hydrogen bonds gives the body information by proton conduction by soliton migration of energy. Weak actions used in Oriental medicine are effective due to these effects. The effect on the skin, far from the disturbed organs, quanta of high frequency, allow to normalize their activity at a distance. Similar capillaries are typical for the skin, skeletal muscles, smooth muscles, heart and cerebral cortex – all organs of the motor, regulatory, protective t. hydrogen bonds gives the information by proton conduction by soliton migration of energy. Weak actions used in Oriental medicine are effective due to these effects. The effect on the skin, far from the disturbed organs, quanta of high frequency, allow to normalize their activity at a distance. Similar capillaries are typical for the skin, skeletal muscles, smooth muscles, heart and cerebral cortex – all organs of the motor, regulatory, protective functions. Processes in the movement of water are noted in the capillaries of wood. Entertaining have been featured in the press reports that to increase the yield applied irrigation with sprinkler irrigation, hardly knowing about the chemistry of moving water. Spraying. But observant people always: “grows like mushrooms after the rain”. It is the rain, not the humidity need, its a lot of wetlands. Experimentally difference of the development of Kalanchoe shown from moving irrigation water (Figure 7). This is described in [57] the Difference in plant development is obvious. The facts show that in polymers there is no water of different power bonds, covalent, ionic, hydrogen. There appear in structural units conjugated electronic co-operativity, the socialization of energies of all components into a single energy system. And NMR data clearly show the presence of only 1 type connection, which is shown by simple experiments on the movement of water, contrary to false theories of liquids on the model of gases or metals. There is no reason, the belief of lie reigns. Reason and faith are always oppozites.

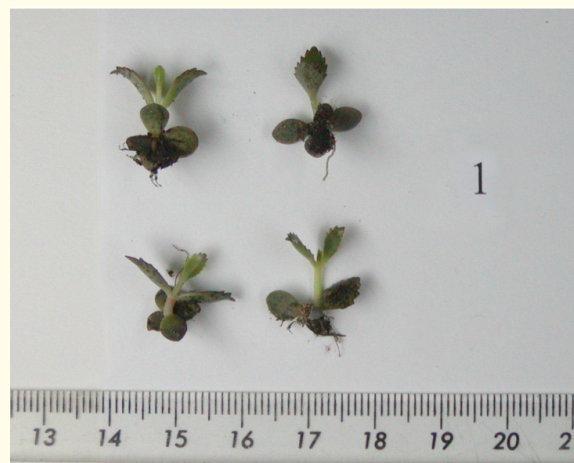


Figure 7: After irrigation, the moving and the stationary.



Figure 8: After watering with just water.

Different matrices near the object can affect on use of products by the object. By testing the growth of Kalanchoe a number of plants found small differences, even in the experience with InSb. Arrangement of atomsO in the ice strictly defined structure tetrahedrally. In water without lattic middle order is the same. This lack gives to free molecules to penetrate to the “centre “ and higher d. And in living organisms on 70-90 % composed of H₂O, polymers of water exist in the inherent structures. The “wreckage of polymers” adjusted for them, supporting the body. Moving water not only gives the products for life, but also get H₂O in a form, ready to

build a needed for body. So water, its M n particles irreplaceable on the all natural biological, geological, physical, chemical processes. There is a unity of Nature. Using the inexhaustible energy from Cosmos, the world's reserves of O₂, by constantly vibration of H₂O, formed ozone, H₂O₂, etc. [27-29,58.59].

Conclusion

Water at movement show that shaking causes a periodic growth of concentration of protons and other products with higher positive potential that is substances necessary for vital functions of living organisms. The obtained results assist in understanding of processes occurring in blood capillaries, the most important section of metabolism. In addition, experiments on the role of nano particles of water polymer decay products, which play an important role in a variety of natural processes. In this context it is logic to say that like weak movement (even for infection of Sn - NB!) could explain processes in living organisms, understanding of efficiency of medical actions by means of weak energy influence, why low level EM radiation influence to organisms in MRT is effective. So, the water behavior in inorganic processes as well as in living confirms idea of unity laws for living "ecosystem" and non - living "environment" " Water has 1 type of O-H bonds. In the structural units of the paired electrons, socialized energy in the common energy system. Facts teach, alas, far not all. Water plays a special role in the life of the Earth. In ancient times, it was considered one of the 4 elements of the world along with the earth, air, fire. Water covers 71% of the Earth's surface. Organisms up to 60-90% consist of water, while not being a liquid solution, and seas liquid. The waters of seas, oceans, rivers, waterfalls, clouds lakes, glaciers etc are constantly in motion. Life originated in the water of the seas, it is no accident the pulse rate of living beings varies about 1 Hz, the frequency of waves. In youth I always went to watch Ladoga ice drift on the Neva. The masses of ice cramped, in the form of vertically protruding boulders noisily rubbed, and the enchanting spectacle was easy to breathe. This forms O₂ and O₃, but impossible now to measure of O₃ on the beach and in the distance, so long ago by command of new rulers began to blow the ice still on the lake. Small ice floes without nice helpful for science and joy for people.

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