

The Place of Our Earth in the Universe and Turning-Points in Its Life (Thoughts Induced by the Climate Change)

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Keywords

Life, Life Conditions, Bio-Sphere, Closed System, Effects of Living Units, Ineffective Efforts

The Life is a biological phenomenon which is connected to the structure of a living unit/entity which is bordered from its environment. Appearance of the Life on the Earth is a result of the general processes of the Universe. The Life on the Earth of mote in the endless Universe has consisted of different systems of living units which have been in mutual dynamic connections with each other. The Bio-sphere in respect of the Life is a closed system. The living units including the conscious human beings, too, have significantly influenced on the condition of the environment/the Earth. The Life can only persist when the conditions - life conditions – are in accordance with the biological laws and requirements. Efforts which have been performed to stop the unpleasant changes of qualities of the earthly environment have been ineffective. The author has urged convenient and effective actions to preserve the Life.

What is the Life

Our hot Earth of dust appeared at a given exceptional moment in the timeless and endless Universe the principles of which never will totally been know by mankind. After some time *the Life which is a biological phenomenon and is connected to a structure of a living entity/unit* formed (or was created) on the cooling, inert Earth. *The living entity is such a structure, which is bordered from its environment (in the present case the structure means the total material construction of a living biological unit) and which gives the possibility that in itself and through its border energy as well as substance flow has existed, which is accommodated to the given environmental circumstance (among certain conditions – life conditions) in the necessarily arranged way, which is characteristic and positive for the unit till its death. During that period of time there has been a dynamic balance between the entity and its environment. The living unit reacts to the outside effects and in the same time has influenced on its environment, can multiply when its characteristics bequeathed to its offspring and all its processes are directed by the general laws of the Universe (1).*

As to the *essence of Life* it was already published in our pamphlet of 2004 that “*the aim of the Life is only the further Life*” (2). The first living entity probably was a microorganism the formation of which has been unknown. On the basis of the before mentioned facts all questions connected with the Life *should be investigated with the help of the biological laws* because single rules of the physics, chemistry, economics and politics are *insufficient* along.

Life Conditions in the Closed Bio-Sphere

Now it seems that in the timeless and endless Universe *the Life is only present in the Bio-sphere of the Earth. The Bio-sphere in respect of the Life is a closed system*, because neither Life or men nor the factors which can detrimentally influence the Life are able to spontaneously leave it and furthermore those factors which are necessary for the Life can not freely arrive from the Space. For a continuous life in a closed system – for example in case of a microbial mass-cultivation - it is *obligatory permanently* to ensure *the specific life conditions* (optimum and standard composition, pH, temperature, aerobic or anaerobic condition of the medium, elimination of the unnecessary substances and mass of bacteria and so on).

Erwin Schrödinger and later Atsushi Katsuki supposed that *the Life needed an environment of low entropy as compounds of small entropy which were necessary for the Life* could be consumed by the living entity only in such circumstance (3). Convenient entropy condition of the Earth is ensured by the water-circulation. Rains regulate the temperature of our Globe. During the last decades the temperature of the Earth has increased and in the same time the climate, character of the seasons and that of the weather have changed. These alterations are not surprising for us on the basis of the above mentioned theory. The measures have verified that not more energy as earlier has arrived at the Earth from the Sun. This means the causes of the increase of temperature which will be presented later in our Tables must be in the Bio-sphere.

Living Entities and Environment

One of the characteristic features of living entity is that *they have not only been influenced by their environment but in the same time they have also made effects on their surrounding*, too. Therefore since the first living entity appeared on the Earth *the fate of our Globe has not only been determined by the laws of the Universe but by the effects of the living entity, too*.

That was the first turning point in the life of the Earth. The importance of the effects of the living entities may be verified by that supposition on the basis of which the early reductive condition of the Earth were converted into oxidative one by microorganisms. In consequence of their metabolism the free oxygen appeared and the new condition gave the possibility of formation of breathing organisms and finally that of human being. Since the appearance of microorganisms on the Earth they have represented the greatest part of living population. Their number is infinitely big and unknown. *Without microorganisms there would not be Life!*

The appearance of human being has resulted in the next decisive change in the life of the Earth. Till that point of time only natural microorganisms, plants and unconscious animals, which were controlled by natural way, lived and influenced on their environment and the natural inanimate processes (volcanoes, meteors and so on) were also effective. Since the appearance of “conscious” men they have made their actions to improve the conditions for their more conformable and better life and nowadays mainly for profit. In consequence of the logarithmically increasing number of mankind the harmful processes have become stronger to the living Earth.



Fig. 1. Everything has originated from the first pair of man...



Fig. 2. We started from here and arrived at the biggest tower of the World ...

The effects of the unpleasant processes were moderate and only very local before the industrial revolution, but after it they became more intensive and bigger and bigger areas of the Earth were affected. The size of forests has decreased more rapidly. After the 2nd World War - in consequence of the great euphoria and unfounded imaginations - the speed of processes has risen. First it was observed that the snow disappeared from the Kilimandjaro and the dimension of deserts started to increase as well as the character of the typical seasons altered. The unpleasant phenomena became global and we arrived at the present serious situation which is characterized by the data of the Tables.

On the basis of the data of the Tables it can be told that all parameters have changed in an unpleasant direction. The listed alterations have influenced on the all Nature. They have spoiled the health condition of human beings causing unexpected death cases for example in France, Hungary and the USA. They have interfered upon agricultural production, animal husbandry and forestry, too. In consequence of these changes tropical and subtropical insects and diseases have immigrated into the countries of the temperate zone.

Diagnosis and Therapy

In the *best case* these alterations have meant for me - who is a medical doctor, a microbiologist and a public health specialist - that although both the “*diagnosis*” and the “*therapy*” to stop the unpleasant processes are equally correct that the “*dose*” is insufficient in spite of the different efforts have been performed all over the Earth. Therefore it is obligatory to drastically enlarge the “*quantity of the medicine*” as soon as possible!

In the *worst case* neither “*diagnosis*” nor “*therapy*” is correct or only partly exact. If this would be the situation at present then everything must immediately be revalued to get the newer “*diagnosis*” and the “*convenient medical treatment*” which must immediately be started otherwise the “*patient*” will soon be lost.

Conclusion

The living Earth consisting of great numbers of ecosystems which are closely connected with each other and can only exist between the borders of the living conditions. Under and over these borders there is not Life! *The laws of the Life and Nature are absolute categories and there is not any place among them for liberal imaginations!* It is obligatory to realize that the *change of quantity can cause new quality...!*

Table 1. Life needs of a theoretic human being and his/her effect on the environment+

Needs
Oxygen: 250 ml. or more/minutes
Calorie by food (depending on the sex): 1500-1900 kilocalories/day
Basic metabolism: 88 w. (in case of a heavy work more than 600 w.)
Drinking water: 2-2.5 liters/day
General water use: 20-500 liters/day (The world average 50 liters/day)
Energy (estimated world average in 2000): 70000 megajoules/day
Convenient Sunshine, weather, temperature and rain: as during the earlier centuries
Products
CO ₂ : 17 liters/day
Heat: About 80% of the total daily energy produced in a body departs into the environment
Steam and water by expiration and sweat: unknown
Urine: 1.5 liters/day
Faeces: 100-500 gr./day
Sewage water: Its quantity is proportional with that of the water used
Solid communal waste for example in Hungary: 0.4 t./yr. or 0.6-1.2 m ³ /yr.
+ Note: As the number of man kind is more than 7.2 milliard the data shown in this Table must be multiplied by 7.2 milliard to get the real quantities.
Summarized effect of <i>microorganisms</i> of infinite great number is unknown, however it is sure that without their metabolisms there would not be life in the Bio-sphere. It is known that some kind of them can use CO. The aerobic microbes need oxygen and liberate CO ₂ . Those which play role in production of compost during that process produce measurable quantity of heat.
As to the members of <i>plant-world</i> it is well known that they consume CO ₂ and produce oxygen during their vegetation period in accordance with the light conditions. Also they have an important role in the water circulation.
In the case of <i>animals</i> exact comprehensive data are not known by us. It is evident that their species and demands determine their effects. One of the examples: oxen produce methane.
Here and now we do not deal with the effects of <i>industry, agriculture, army, space research, transportation, other services and households.</i>

Table 2. Characteristic data+

<p>Number of population in milliard: 1850: 1.17; 1937: 2.1; 1950: 2.5; 1980: 4.4; 2014: >7.2</p> <p>CO₂ in the global atmosphere in ppm.: 1750: 250; 1957: 315; 1987: 350; 2014: >400 The rise is general but on the Northern hemisphere faster</p> <p>Other gases(for example methane, CFC) in the atmosphere: changing concentrations</p> <p>Average temperature of the Earth: 2 centigrades higher than it was in the sixties</p> <p>Melting of ice: It is general but on the Northern hemisphere more important</p> <p>Size of forests in milliard ha.: 1882: 5.5; 2005: 4.0 (now the decrease has been 13 millions ha./yr.)</p> <p>Energetic raw materials and their quantities:</p> <p>-coal in million t.: 1937: 1280; 1958: 1762; 1980: >2805; 2005:5878; 2014: increasing</p> <p>-oil in million t.: 1937: 279,5; 1958: 809,8; 1980: 3059; 2000: 3590; 2014: unknown</p> <p>-gas in milliard m³: 1935: 71; 1958: ≈ 400; 1980: 1531; 2005: 2778; 2014: increasing</p> <p>-fire-wood: 60% of the lumbered trees</p> <p>Different other energies: Sun, wind, water, biomass, geothermic, waste materials, atomic, H₂ and O₂</p> <p>The origin of total primary energy in 2010 by the International Energy Agency:</p> <p>-oil: 33%</p> <p>-coal: 27%</p> <p>-gas: 21%</p> <p>-water: 10%</p> <p>-atomic: 6%</p> <p>-wood: 2%</p> <p>-others except water and atomic: 1%</p> <p>Energy users in Hungary in 2010:</p> <p>-households: 34.8%</p> <p>-transport: 25.9%</p> <p>-other services: 19%</p> <p>-industry: 17.3</p> <p>-agriculture: 3%</p> <p>+Note: It is necessary to mention that the values presented here are not the same in the different publications! Present burning of oil, coal and gas liberates the energy of Sun had accumulated during millions of years earlier in the organic substances and transformed into these raw materials inside the Earth. Burning of wood or other plants sets free also the energy of Sun but that was fixed nowadays in accordance with their lifetime. In 2014 man kind already used the total yearly renewed resources by 19th August up. All (produced, liberated and collected) energies except those which are used for works burden the environment!</p>
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Birth: Pécs (Hungary) at 14th July, 1937. *Diploma:* G.P. from the University of Med. School Pécs (UMSP) in 1961. *Working places:* Inst. of Microbiol. and Inst. of Public Health and Epid. of UMSP, Nottingham Univ., Hungarian Meat Res. Inst. And Ministry of Welfare at Budapest. *Retirement:* 1999. *Graduation* from the Hungarian Academy of Sciences (HAS): Ph.D. 1973, D. M. Sci. 1986. *Main fields:* bacteriology (new strains, media, diagnostic methods), infections and immunology (salmonellosis, listeriosis, botulismus and antibacterial -, -toxic -, -pyrogenic immunity, vaccination), feeding of living and killed enteric bacteria, epidemiology and food hygiene (listeriosis, zoonoses), environmental protection (control of surface waters, meat industrial wastes). *Research abroad* for 19 months in the U.K. the USSR, Cuba, Germany. *WHO adviser* of listeriosis. *Publications:* 158 articles, 3 books, 1 pamphlet, 2 chapters, 11 paper-books. *Membership:* ICSB Subcom. Tax. Listeria, Soc. Gen. Microb., ASM, NY. Acad. Sci., IUMS-ICFMH WPCM, Public Bodies of HAS, Hungarian Codex Alimentarius and in 5 other Sci. Soc. *Honors:* Markusovszky Award, Manninger Medal, 3 different Rewards of HAS, Medal of the CDC (USA), Reward of the National Water-authority, Reward of Industry for Environment Found., Order of Gold Cross of the Hungarian Republic.

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