ISSN: 2634 - 8845

Journal of Earth and Environmental Science Research

SCIENTIFIC Research and Community

Review Article

Open Access

Thoughts about the Life Periods of our Earth and why we are not able to Better our Climate?

Ralovich Bela

Ministry of Welfare (Retired), Budapest, Hungary

***Corresponding author**
Ralovich Bela, 8649 Balatonberény, Rozmaring u. 13. Hungary. E-mail: ralovich.b@gmail.com

Received: August 30, 2022; **Accepted:** September 06, 2022; **Published:** September 09, 2022

Preface

Before 2012, when the first NASA Voyger 1 space capsule after more years long travel left our solar systeme and entered the interstellar space, it was believed that in this territory was only vacuum. In spite of this hypotheses the instruments of the space capsule measured increasing quantity of plasma/cosmic ray/flux. In november of 2018 the Voyger 2 confirmed the before mentioned result. So today we must accepet the fact that the number of the high energy electrically charged particles have increased in the interastellar space instead of vacuum. Such particles have been emitted by our Sun, too. The name of this ray/flow is Sun wind and its particles have arrived at our Earth. We only mentioned this example to demonstrate that at present our knowledge about the Universe is somewhat hypothetical. In spite of this fact we try to summarize our thoughts connected with the life of our Earth on the basis of retrospective data and our own calculations.

We have started to deal with the problems of man kind before 2004. Our first paper came out that year. Our opinion is that the Universe is a constant and continuous flow and metamorphosis of the matter and the energy between each other which process on the basis of the law of conservation of matter and energy is endless. Their relationship was quantified by *Albert Einstein* in his famous equation $E = mc^2$, where E is for energy, m for mass and c^2 is the square of the spe ed of light.

What are the constituens of the Univers

The Univers is a complex system consists of temporal visible forms of matter which might be active/living like our Sun semi-active like our Earth or dead like our Moon as well as different nonvisible but measurable kinds of energy. The visible forms are the celestial systems, the solar systems, including our own solar system also, the Milky Way, the galaxies and their building stones: the stars, the black holes, the planets, the minor planets, the comets, the meteors/meteorites and the microscopic cosmic dust. The single visible forms were developed sometime in the past-for example it is supposed that our Galaxy was born more than 10 billion years ago and the age of our Solar System and that of our Earth existing in that System may be 5 - 4.75 and 4.6 - 4.55 billion years, respectively-or have developed at nowadays-for example a new star being born -and will disappear in the future as a result of energetic and material effects as well as changings in the Universe.

The invisible forms are the wavelength-dependent radiations consisting of photons of electromagnetic origin, the strong and weak interactions between atoms, and the gravity. In addition to these, we must also mention the high energy cosmic ray/flux from interstellar space and/or our Sun, which in addition to the electromagnetic gamma radiation mentioned before, contains various particles-protons, electrons, helium and other nuclei, as well as elementary particles-neutrino, pion, kaon, muon, tau and zeta, too.

Besides these, it is also necessary to mention the dark matter and the dark energy. Their nature and role are not known yet. It is supposed that the dark matter is in a dynamic connection with its own visible concrete matter and the dark energy is carried by its own dark matter. It is supposed that the gravity between two bodies may be influenced by their dark matter content.

The Life periods of our Earth

And now we deal with the life of our Earth, which was born as a glowing pile of matter and energy in the Universe. It consisted of hydrogen and helium. The energetic conditionds in the neighbouring space of that time are unknown. The life of the Earth can be divided into two main periods. The first one was its sterile *physical life* which can be separated into smaller sections. The first section was its *atomic evolution* on the basis of the theory of *György Marx* during which its constituent elements evolved. Next section was the solidification of its surface between 4.3–3.9 billion years in the past. Only after that could fluid water appeare and, in consequence of the *chemical evolution* substances and environmental conditions which were necessary for the appearance of the first living entity were formed in the solution by the effects of both the kinds of internal earthly energy and/or that of the external ones. During that period of time the energy was effective only physical-chemical way. It is supposed that the first living entity was born between 3.6–2.3 billion years ago.

The second period is its *nonsterile biological life* which began with the birth of the first living entity. This entity was a bordered temporary substantial structure/matrix which needed and could accept the external-electromagnetic, chemical or cosmic-energy and which was suitable to maintain a life-long continuous electron and ion transport that is its own metabolism and entropy, further

was able to develop and change by mutation and had the ability of reproduction, as well as to use anorganic carbon and other atoms for prodution of different compounds containing built-up energy further emitted CO_2 and other compounds of its own metabolism. The start of the life of the first living entity resulted in a decisive change in the former physical life of our Globe as the modification of the former ballance of matter and energy has started. That was the first occasion when production of energy-containing compounds happened on biochemical way that is the *bioaccumulation of energy* has started. Besides this decomposition and utilization of the substances of its surroundings as well as loading its environment have come into existence. If the biological life would not have appeared on our Earth then the earthly circumstances would be similar to that of the Mars or the Moon except those which are originating from its unique position in the space. If somebody wants to detect the marks of the biological life in the Univers then those substances/compounds have to be looking for which are the only products of the metabolism of a living creature.

The effect of the evolution

The environmental and energetic importance of the living entity has continuously increased due to its *multiplication* and *evolution*. The appearance of *photo-synthetic* and *oxygen-producing* organisms might happen between 3 – 2.3 billion years ago. Their apperarance has meant a great step forward in the evolution because they were able to utilize and store the *Sun's photons* on biochemical way and this was a quite new and significant form of energy storage. Further they helped the development of oxygen-demanding organisms, too. Another change was the appearance of *warm-blooded* organisms between 230–170 thousand years before because their metabolism significantly has risen the biological heat production and evaporation ensuring their own thermal equilibrium. Both processes have steadily increased in relation to the number of these organisms. The propagation of aquatic and terrestrial organisms on our Earth resulted in the accumulation of significant quantity of organic substances together with their energy. In consequence of the death of these creatures their substances and energy accumulated in the sediments of water bodies and due to various geological changes in the deeper layers of the soil also during millions of years. This process led to their removal from the natural material and energy cycle. Their absence together with other events-for example hits of meteors, strong volcanic activities and deeper geological changes etc. which had happened and were natural ones affected not only the Earth's climatic conditions, leading to climate changes and ice-ages but also the extent of earthly biological life. At present as the arriving energy of our Sun has been constant there is not any other possibility to explain the energetic changes as which have been mentioned above.

The organic substances and their energy content stored are the nonrenewable energy sources of today. When their substances are burnt then their carbon and other elements and energy previously omitting from the natural material and energy cycle have returned into that cycle in the form of carbon dioxide, ashes and heat. They have resulted in the opposite processes which had happened in consequence of their getting out from that cycle. This process is one of the main causes of the recent climate changes.

The effect of human life and civilization on the closed earthly systems

Further decisive change began with the appearance of *conscious humans* who realized the advantages of using fire. That event happened in East Africa 200 thousand years ago and they spread from there all over the world 50 - 60 thousand years before in the past. In consequence of the multiplication of human beings they have needed continuously increasing quantity of food, water and other substances, heat as well as accomodation and besides these their wealth accumulation desires have also formed. These needs could only be ensured with domestication of animals, transformation of natural environment for housing, agriculture, transport, industry and mining etc. These actions have meant the beginning of the destruction of natural conditions which process is still taking place today. That process because of the discovery of the first steam engine which happened in 1778 and the general development has turned into a continuously faster one, which has been even intensified by the over-optimism of the 1940s. The name of that process is *Industrial Revolution*. This is how we arrived at today when the number of the world's population was on 18th February 7,929,714,000 and on 20th April 7,944,521,000 that is the increase was 14,807,000 persons and that number is rising with acceleration by one in less than one second. Besides this, the substantial and energetic demands and effects of the present human and farm animal population (Table 1) are far greater and steadily increasing in comparison with the needs and excreta of those who lived or still living in natural tribal society (Figure 1). The needs of people and farm animals must be supplied with food, water and accomodation at least, and each person and animal emit carbon dioxide, heat, vapors and other excreta. The quantity of the needs and the excreta was calculated by us in our earlier papers (Table 2). Its amount is enormous which ought to be neutralized by the nature. And we haven't even mentioned consequences of agriculture, industry, transport, space experiments, wars etc. as well as the heat effect of the fuels burnt (Table 4) and that of the artificially collected, liberated or produced enery – by solar cells, wind-, water- and atomic power stations as well as that of flaming of hydrogen. They all mean plus heat on the earthly environment besides the original energy of our Sun that is the natural heat balance is seriously changed. We tryed to demonstrate the changings occured on the Earth during the last 170 years (Figure 1.). Their increasing tendency can also be seen on the graphs of the International Energy Agency (Figure 2, 3, 4). On the basis of these facts it is totally meaningles to expect any improvement of our climate the modification of which has now reached a very critical extent.

Table I. Number of farm animals during the last decades

Point of Time	Animal species and their number x 10^6				
	Oxen	Horse	Pig	Sheep	Hen
1930th	438,9	68,1	193,3	563,0	-
2000**	1351,9	57,7	922,8	1065,5	14,3
2017**	1477,0	57,6	977,6	1206,6	31.9
2020**	1525,9	59,9	952,6	1263,1	33,0

Abbreviations: - = unknow datum; ** = FAO data

Table II: Needs and emissions of a human being (75 kg) in case of basic metabolism during one day

Specifications Years Number of man Needs	**1**	**1860 1.17x10^9**	**2022 7,944 x10^9**
O_2 demand (ml/min.)	250	2 ,9x10^{11}	1,98x10^{12}
m^3/day		2 ,9x10^5	1,98x10^6
Energy by food (MJ/day)	7,53	2,29x10^5	1,14x10^{10}
Pproduction (W/day)	88,6	1,03x10^{11}	7,03x10^{11}
Drinking water (l/day)	2-2,5	2,34x10^9- 2,9 x10^9	1-5 8 x10^{10}-1,98 x10^{10}
Total water use (l/day)	20-500	2,3x10^{10}-5,85x10^{11}	1,58 x10^{11}-3, 97x10^{12}
Generally use	50	5,85x10^{10}	3, 97 x10^{11}
Emissions			
CO_2 (ml /min.)	192,1	2,24x10^{11}	1,52 x10^{12}
(m^3/day)		2,24 x10^5	1,52x10^6
Heat (W/day)	44,3	5,18 x10^{10}	3,51x10^{11}
Steam and water	?	?	?
Urine (l/day)	1,5	1,75x10^9	1,19 x10^{11}
Faeces (g/day)	100-500	1.17x10^{11}- 5,85x10^{11}	7,944 x10^{11}-3, 97 x10^{12}
Communal waste	0,4 (t/year)	4,68 x10^8	3 ,17x10^9

Abbreviation:
?= datum is unknown

Table III: Needs and emissions of a calf (75 kg) or a catle (600 kg) in case of basic metabolism during one day

Specifications Years		**1930th**	**2020++**
Number of calf'	1	?	?
Number of catle Needs	1	4.38x10^8	1,52 x10^9
O2 demand (ml/min.)'	390	1,7 x10^{11}	5,92 x10^{11}
(m^3/day)'		1,7x10^5	5,92x10^6
Energy by food (MJ/day) '	7,84	3,43x10^9	1,19x10^{10}
Catle (MJ/day)	63	2,75x10^{10}	9,57x10^{10}
Production (W/day)'	87,85	3,84x10^{10}	1,33 x10^{11}
Catle (W/day)	727,6	3,18x10^{11}	1,10x10^{12}
Drinking water (l/day)	26-110	1,13x10^{10}-4,8x10^{10}	1,67x10^{11} -1,67x 10^{11}
Total water use (l/day)	?	?	?
Emissions			
CO^2 (ml /min.)'	311	1,36 x10^{11}	4,72 x10^{11}
(m^3/day)'		1,71 x10^5	4,72x10^5
Heat (W/day)'	43,9	1,92x10^{10}	6,67x10^{10}
Catle (W/day)	363,8	1,59x10^{11}	5,52x10^{11}
Steam and water			
240 g/75kg/h'	180'	7,88x10^{10}'	2,73 x10^{11}'
240 g/600kg/h	1,44x10^5	6,3x10^{13}	2,18 x10^{15}
Urine (l/day)	10-15	4,38 x10^9- 6,57 x10^9	1,52x10^{10}-2,28 x10^{10}
Faeces (kg/day)	10-30	4,38 x10^9-1,31x10^{10}	1,52x10^{10}-4,56 x10^{10}
Methene (l/day)	100-500	4,38 x10^{10}-2,19 x10^{11}	1,52x10^{11}-7,6x10^{11}
Manure	?	?	?
Sewage (l/day)	30	1,31x10^{10}	4,56x10^{10}

Abbreviation:
?= datum is unknown; '= datum belongs to the calf; ++= FAO datum

Table 4: Data to the Circulation of Energy and CO_2 on the Earth

Specifications	Mass of fuels as well as their average thermal values and the quantity of CO_2 liberated from them in Years						
	1860	1935+37	1958	1980	2000+05	2009+14	2017
Oil × 10^6t	1	279,5	809,8	3059	3590	4117	4365
40,5 MJ/kg	$4,05 \times 10^{10}$	$1,13 \times 10^{13}$	$3,27 \times 10^{13}$	$1,23 \times 10^{14}$	$1,45 \times 10^{14}$	$1,66 \times 10^{14}$	$1,76 \times 10^{14}$
CO_2 m^3	$3,17 \times 10^9$	$8,86 \times 10^{11}$	$2,56 \times 10^{12}$	$9,69 \times 10^{12}$	$1,13 \times 10^{13}$	$1,3 \times 10^{13}$	$1,38 \times 10^{13}$
Coal × 10^6t	136	1280	1762	2805	5878	7823	7549
20,35 MJ/kg	$2,76 \times 10^{12}$	$2,6 \times 10^{13}$	$3,58 \times 10^{13}$	$5,7 \times 10^{13}$	$1,18 \times 10^{14}$	$1,59 \times 10^{14}$	$1,53 \times 10^{14}$
CO_2 m^3	$3,12 \times 10^{11}$	$2,92 \times 10^{12}$	$4,05 \times 10^{12}$	$6,45 \times 10^{12}$	$1,34 \times 10^{13}$	$1,79 \times 10^{13}$	$1,73 \times 10^{13}$
Gas × 10^9m^3	-	71	400	1531	2778	3479	3768
37 MJ/kg	-	$2,62 \times 10^{12}$	$1,44 \times 10^{13}$	$5,64 \times 10^{13}$	$1,00 \times 10^{14}$	$1,25 \times 10^{14}$	$1,35 \times 10^{14}$
CO_2 m^3	-	$1,34 \times 10^{11}$	$7,60 \times 10^{11}$	$2,90 \times 10^{12}$	$5,27 \times 10^{12}$	$6,61 \times 10^{12}$	$7,15 \times 10^{12}$
All together							
MJ/kg	$2,8 \times 10^{12}$	$3,72 \times 10^{13}$	$8,24 \times 10^{13}$	$2,66 \times 10^{14}$	$3,63 \times 10^{14}$	$4,50 \times 10^{14}$	$4,64 \times 10^{14}$
CO_2 m^3	$3,15 \times 10^{11}$	$3,94 \times 10^{12}$	$6,88 \times 10^{12}$	$1,9 \times 10^{13}$	$2,97 \times 10^{13}$	$3,76 \times 10^{13}$	$3,81 \times 10^{13}$

Abbreviation:
- = we do not know datum
Note: Some of the quantity of fuels originate from IEA. The others were collected and the energetic values were calculated by us

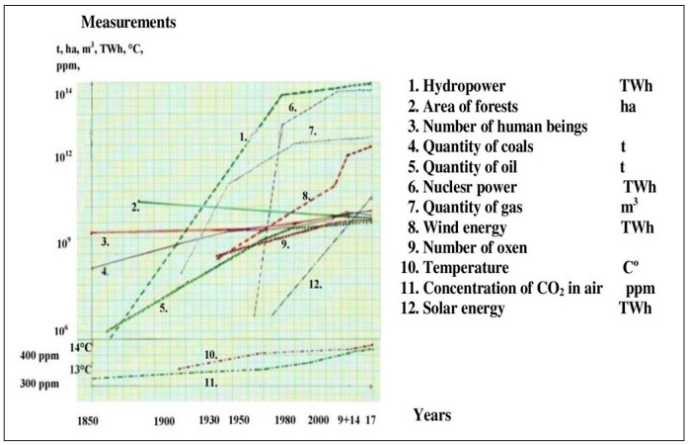

Figure 1: Changings occured on the Earth during the last 170 years

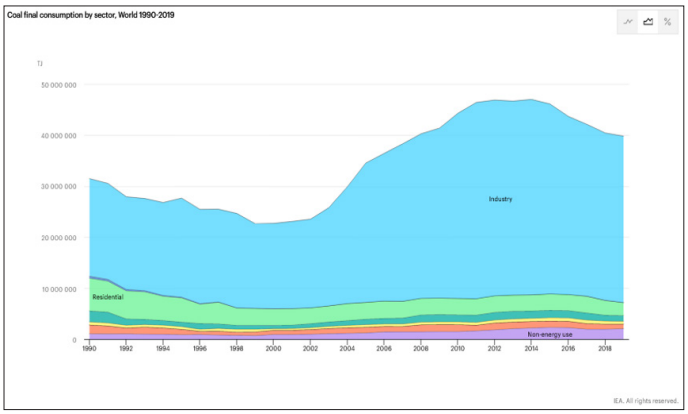

Figure 2: Yearly quantity of coal used on the world by IEA

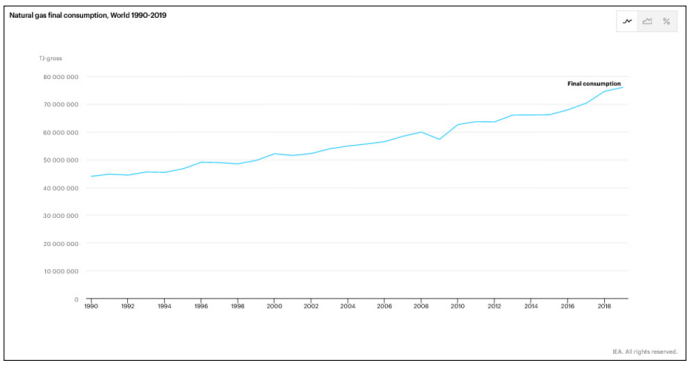

Figure 3: Yearly quantity of gas used on the world by IEA

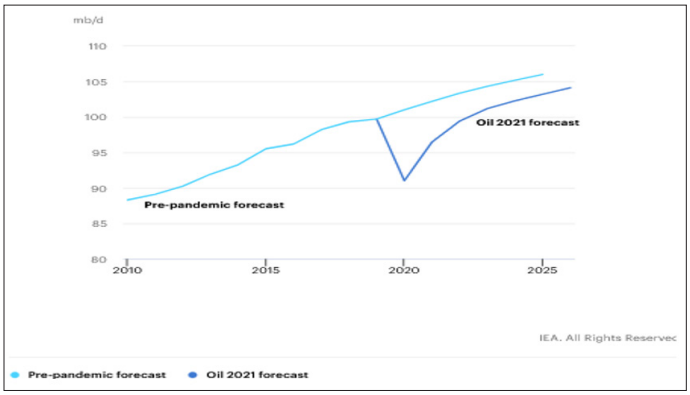

Figure 4: Forecast of yearly oil using on the world by IEA

Economic and military policy
A further serious problem is that all above mentioned event has happened in a *closed system* the substantial and energetic possibilities of which are given and limited. The development of the present situation has been strengthened by a scientifically worked out Nobel Prize-winner profit-orientated economic system which is based on the wasting, too.

Besides this single countries have wanted to dominate on the world which requires production of immensely expensive military instruments and maintenance of the necessary military background and then we do not mention of the effects of a war.

In addition to these, there are unrealistic and unnecessary illusions about sustainable development, the conquest of Mars etc. and besides these for example there is an organized less than 10 minutes long travel into the space for a horrendous price of 134,000 dollars per person when large part of overpopulated persons on the world is starving and living in dire poverty. Therefore we think it is very necessary the fast and drastic decrease of heat emission and of reproduction of human beings and to change our present life style all over the world. We must immediately step back [1-19].

References

1. Ralovich Béla (2004) Az öreg ember és a gondolatok. Püski Kiadó Kft., Budapest.
2. Béla Ralovich (2020) The History of the Hungarian Nation in the Light of the Life of our Earth. Püski Publishing Company, Budapest.
3. Béla Ralovich (2021) Sustainable Biological Life instead of Sustainable Development. 1st ed, Book Publisher International, India - United Kingdom. ISBN 978-90516-70-4
4. TR Morgan (2018) Origine of the Universe, Dark Energy and Dark matter. Journal of Modern Physics DOI: 10.4236/jmp.2018.95054
5. Ramzi Suleiman (2018) A Model of Dark Matter and Dark Energy Based on Relativizing Newton's Physics. World Journal of Condensed Matter Physics DOI:10.4236/wjcmp.2018.83009.
6. Albert Einstein http://users.physik.fu-berlin.de/~kleinert/files/1905_18_639-641.pdf
7. Marx György (2005) Gyorsuló idő. Typotex Kft., Budapest ISBN: 978-963-9548-61-9
8. Béla Ralovich (2014) The Place of our Earth in the Universe and Turning-Points in its Life (Thoughts induced by the Climate Change). American Association for Science and Technology 1: 116-119.
9. Ralovich Béla (2015) Adatok a Föld 1850 és 2015 közötti energia- és anyag-forgalmához. Egészségtudomány LIX 3: 96-129.
10. Béla Ralovich (2016) Data on the Changes Occurring in the Biosphere since 1778. Open Journal of Ecology 6: 387-403.
11. Béla Ralovich (2017) The Place of our Earth in the Universe and Turning-Points in its Life. in Narro A, Folloni A, Pitasi A, Ruzzeddu M (eds): Inventing the Future in an Age of Contingency. Cambridge Scholars Publishing, Newcastle upon Tyne, UK 203-209.
12. Béla Ralovich (2017) The effect of the biological life and man kind on the Earth (mainly between 1778 and 2015). Journal of Ecology and Toxicology (Open Access) 1:1-4.
13. Béla Ralovich (2018) Thoughts of a Medical Doctor about the Life Periods of Our Earth and the Evolution. Open Journal of Applied Sciences 8: 411-421.
14. IEA: Coal final consumption by sectors on the World 1990-2019, 2022.
15. IEA: Natural gas final consumption on the World 1990-2019, 2022.
16. IEA: Oil demand forecast, 2010-2026, pre-pandemic and Oil comsumption in 2021, 2022.
17. John Moran (2005) Tropical dairy farming. Landlinks Press, USA 312.
18. Barócsi Attila (2011) A biofizika alapjai. BME TTK Matematika Intézet, Budapest 190.
19. FAOstat: (https://www.fao.org/faostat/en/#data) 2022.

Copyright: ©2022 Ralovich Bela. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.