

## **The Principle of Maximal Geochemical Activity (MGA)**

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“Want to last – have to spin fast” ...from folk biophysics.

The Principle of MGA is included in “trial and error method” – the instrument to search a new.

From what I know today, the greatest predictive power has the principle of maximum geochemical activity. Activity in the broadest sense: material, energy, informative.

In the Russian-language scientific literature, it was first clearly stated by academician V.I. Vernadsky. All living things on the planet throughout their milliards of years' existence obey this principle and develop in accordance with it.

According to V. I. Vernadsky, it is the empirical regularity that has never been broken on the planet. There were stops, but there was no return.

As soon as someone or something, in general any discreteness of the living world, contradicts this principle, then it immediately disappears. It necessarily follows a discreteness that is more geochemically active and has a better nerve communication system.

It is an extremely hard, if not violent principle.

Close in time examples are Stalin, Hitler. What monsters they were from the point of view of common to all mankind morality! They not only lived, but also governed at a large-scale, only until they were consistent with this principle.

And that can be said about any discreteness of our world, whether it is a bacterium, a smart businessman, a company, a state and so on.

And when I hear: let's obtain and spend less natural resources unhurriedly, let's build less and save more for "a rainy day" - referencing to the environment, descendants, inefficient distribution or to something else, the principle says to me: these people, organizations are doomed, they will not exist.

And if they're trying to restrict the search of new, dividing it into science and pseudoscience, these people have no future, they will not live in any sense.

And if they call or try openly or secretly to limit the creation, transfer and transformation of matter, energy, and any information - good or bad, these attempts are doomed.

So, the Mayan prophecies that have recently been on everyone's lips, and any other prophecies, if they are interpreted in the framework of this principle, tell us:

Everything will be well,

Happiness by our own hands,

But to sit back, relax will never be possible even for a moment.

Maybe only in a dream?

So the request of Vladimir Vysotsky "Slow down a bit, horses ..." completely contradicts the principle. It is the beginning of the end.

And the slogan in "Roadside Picnic" by the Strugatsky brothers "Happiness for everybody, for free, and let nobody go offended" completely contradicts the principle. It is the beginning of the end. And attempts under any pretexts to reduce, simplify training, education are completely contrary to the principle. It is the beginning of the end.

Millennial experience and observations show that those who fit the principle are paid by the usual external material signs of happiness, but maybe much more valuable signs: a state or feeling, in the languages of the people denoted by the words: orgasm, spiritual, religious, prophetic or any other ecstasy.

The feeling of release from the human limits.

The unanimous reaction to the feeling of those who have experienced it at least once is "A moment, stop! It is beautiful!"

The most relaxed, down-to-earth human verbal formulation of that state is "I wonder." Enrico Fermi to a reporter's question "How can you deal with a nuclear bomb, it is so dangerous for humanity?", replied "Maybe you're right" and after a short pause he added "But what an interesting physics it is!"

All alive, like everything in the world, is discrete, i.e. exists limitedly and develops only through reproduction, discreteness in generations – similar from similar and solely within the framework of the principle.

No reproduction – no Life.

The survivability of any discreteness of the world is proportional to its diversity – the more diversity, the more tenacity. "It takes all sorts to make a world." That is why we are told to "Love thy neighbor" even if he is not like you, and maybe that's the reason. See a side of him which is not yet in you, and if you wanted, join him.

Active love, compassion is in touch with this principle.

And charity, but only such one, about which Henry Ford said "Don't insult crippled people, do not give them the means of subsistence for free. Give them a workable job, employment, pay for it a little more than it is worth - you will save your and their souls." Of course, it will make you act a little more to compensate for apparent excessive cost. But you're not crippled and you want to be active. It warms the soul and is in line with the principle.

In general, to predict, to understand something is to see that "something" in the context of something larger. "Godel's theorem, Dr. Watson - Sherlock Holmes would say, if he were a mathematician

One may study in detail his finger, its mechanics, but to understand its functions, to understand why it exists is possible only having seen the finger in the composition of a body, as a part of a body.

In general, one wants to turn, to transform the task of prediction, extrapolation task (consciously or unconsciously) into the task of interpolation, especially if one believes in self-similarity, fractality of the world, like Hermes Trismegistus in his "The Emerald tablets": "..as above, so below...".

It is possible to express a prediction by a prophecy or a dream. A dream is much more geochemically active than a prophecy and we constantly see that in life.

It is interesting!

## **Appendix**

It's amazing, that the principle of maximal geochemical activity (MGA) is known for a long time. However, I have not seen any reasonable attempt to give it the mathematical form of variational principle of, at least, a similarity criterion. I note here the attempt of Pierre Teilhard de Chardin to express it in geometrical tree-like diagrams in the spirit of p-adic numbers.

Many of us are ready to follow the MGA principle, but turning it into conscious rule of life is countered by a question – what are the limits of this following? We don't really want, at last, to be as cancer cells, behaving in the manner as if their World is only one live.

Many science workers by vocation have intuitive feeling that we can get at least partial answer on this question, if we guess, or even better find experimentally, which part of nearest size discrete entity is our terrestrial world in the hierarchy of living systems.

In this regard, I like the attempt of Aleksey Victorovich Jirmunsky and Viktor Ivanovich Kuzmin to identify, based on available empirical knowledge, the form and numerical value of critical scale factor allowing, albeit estimated, to predict the size of the discreteness in the nested hierarchical sequence of living systems. Clearly, I sometimes see their attempt as a tree, in which each structural element of the hierarchy - trunk, branch, leaf - develops in accordance with its exponent, and this exponent contains the exponents of elements of a lower rank. They got an amazing result - for our today's World the limiting critical scale factor is a construction of three nested exponents –

the number  $e^{(e^e)} = 3.814 \cdot 10^6$ .

In their book – Jirmunsky A.V., Kuzmin V.I. Critical levels in development of systems – there is Table 34, which shows the predictive power of the critical factor. I recalculated the table, starting with mass of the Galaxy core, everything match, except the mass of electron. I checked, if to take as the parameter not the mass, but the size of the discreteness, the same sequence will be obtained.

In general, it turns out that the closest living discreteness to our terrestrial world is, oddly enough, the Sun, the next one is the Galaxy.

We already have some knowledge about ours, terrestrial World.

In this connection, I am interested in such an inverse problem. I arranged in a row three tables of chemical elemental composition - two accessible shells of the Earth - the atmosphere and the earth's crust and between them a table for the biosphere organism, of course, a man. That's that, selfish interest, a man is a measure of all things, although any other would do. And looking at the tables, I immediately see their connection, generally trivial. But then, I place another table next to them, the table of composition of the Earth's atmosphere and solar photosphere, and I also see a connection and there are interesting sensations of analogy and similarity, questions arise. For me, the most interesting were the following: what element - magnesium or sulfur - is an analog to the carbon of terrestrial organisms, and where on our planet there is a place, at least approximately corresponding to the pressure and temperature of the surface of the Sun. In general, it seems to me, it makes sense for us not only to be interested in extra-terrestrial aliens, but also Astra-terrestrial astra, although it is possible that the latter smell of sulfur. It's a joke, of course. By the way, the most authoritative expert in plasma-dust organized discreteness in Russia is the former president of the Russian Academy of Sciences, Vladimir Evgenievich Fortov. It seems that he is closest to the Sun, maybe because he sees nothing mystical and impossible in the existence of a "frozen", quasicrystalline plasma, even if, he believes, due to the overwhelming predominance of the energy of the Coulomb interparticle interaction over the energy of the thermal motion of the plasma particles. And most important, he and his colleagues already know how to create, even for now primitive, solar discrete entities. His installations are no less, and maybe even more interesting, than all colliders, including photon ones, although everything is necessary and important, if we follow the principle of MGA. Curious.