IX. SETTLERETICS, OR «DIGITALIZED» BRAIN. [1]

What is «setleretics»?

Why is it needed by the mankind?

And why is it needed urgently?

Epigraph:

«Don't put all the eggs in one basket».

Proverb.

1. Formulation of the issue and actuality of the problems.

People are wise. And the cited proverb is true. It is, even if we assume that the eggs in that basket are nearly 7 billion. And these eggs are called «people». And the basket is huge. We know it as «the planet Earth».

Let's talk seriously now… **From this,** completely true, banal, usual and obvious to everyone **fac t** , that
all the people live on Earth and nowhere else, comes
one extremely important and not so apparent conclusion. That is namely
our human fatal vulnerability.
If something happened to the earth, to our mutual cosmic home, or some kind of a planetary catastrophe (for whatever reason), it would be the fast and inevitable end of mankind! Unfortunately, we cannot exclude such option. Furthermore, as time passes, the likelihood is only growing.

What are the possible accidents with a planetary nature? How people can and should avoid them?

Catastrophes of planetary scale should be **classified** at least as pairs. As regards to the planet Earth, they are: **(1) exogenous**, i.e. external (cosmic), and
(2) endogenous
or internal (planetary inherent). In regard to people they are: (a) normal (naturogenic or natural) and
(b) artificial
(anthropogenic, i.e. caused by the people or by humanoid sentient beings). Therefore, only 4 possible combinations have been shaped.

What should we do? How to save humanity from impending doom, how to survive? **In order to prevent possible failure**
of the vital unit that enters into the composition of a weak management unit, cybernetics proposed that it be «
duplicated and stored as a backup».

The same mechanism was spontaneously «developed» by nature in the form of the reproduction of the living organisms, and it proved working. Despite the fact, that our planet has suffered several global catastrophes resulting in the annihilation of all the highly developed living organisms, life recommenced after them again and again. But yet, the planet needed hundreds of thousands, if not millions of years for that. The planet has not yet had the opportunity to restore such a highly developed and rational civilization like the contemporary technogenics mankind – it better don't and it is not said it would.

It is quite normal to assume that «duplication and the creation of reserves» of humanity, the most weak and vulnerable unit could be accomplished with **resettlement in space and on other planets** . First of all – within nearby space, on the planets of the solar system. Later – in the outer space, in other star systems. So, if humanity «withdraw the short stick» of any of the already populated planets, it will continue to live on other planets. It will hardly die at the same time of all the planets – for this it will really have to «do his best»…

Unfortunately, the realization of such a life-saving decision, humanity is faced with insurmountable practical difficulties.

Primarily, **Outer space is very unsuitable for** the highly developed **living organisms'** biological base. The protein-nucleic molecular substrate, water-lipid environment of the cellular tissue, the fine tuning and complexity of physiology, the narrow range of vital parameters, homeostatic mechanisms that impede the mind in such a silly way from combining them freely, etc., are practically incompatible with the space habitat (physical vacuum, cold, close to absolute zero, powerful radiation, overloads and weightlessness and other harmful space factors). (
Note:
Incompatible, at least for the highly organized living organisms, standing on a higher level of organization than the tardigrades (Tardigrada, Stelechopoda)). And the development of a spacecraft resembling Earth's ecosystem, with a closed-loop of self-provision and a multi-level defense is such a complicated and costly project that it is virtually impossible for it to be used for mass emigration and colonization of space.

The inevitable mortality of people and other highly organized living organisms caused by age and diseases creates additional complications, a fact that sharply limits the range of the possible space expansion, given the reachable spaceship speed today, way below the speed of light in vacuum *(c)*.

The organization of the generation change (reproduction) during the long space wandering adds even more problems to the situation like: incest which is inevitably followed by degeneration; psychological incompatibility and proneness to conflicts in small groups; ethical problems in cases of birth rate limitation and/or forced, unnatural mortality if the ship gets overcrowded; artificial genetic modification and cloning; the risk of sudden death during voyage due to an epidemic, radiation or meteoritic attack; technogenic damages of the ship, etc.

The repeatedly depicted in the science fiction novels method of «**cryonics» (freezing) or «anabiosis»** is not an option either. If an «**onboard artificial intelligence» is entrusted with** the movement of the spacecraft and an emergency situation not programmed beforehand in the particular AI system and requiring a creative approach by a conscious and rational human being occurs, this could lead to a sudden death. AI with a level of intelligence comparable to that of man, not to mention if it is superior, may make its own selfish and competing with the transported mankind decisions. In simple terms, the AI can intentionally decide to dispose of its passengers.

Even if we assume that all the difficulties that accompany this dangerous space voyage are overcome and are left far behind in terms of time it is not sure that the destination of the ship will turn out to be an Earth-like planet, suitable for life. Broadly speaking, in the known and accessible to us sector of the Outer space there are too few such planets and they are too distant one from another and from Earth and we don’t have enough information on them.

Yet, even if we find ourselves on such a suitable for life planet and colonize it successfully, after some time, under **the laws of Darwin on evolution and socio-historical development,** we will inevitably **end up with a different biological species of «homo sapiens», and with that, possibly with a future adversary, an enemy in the «star wars»,** instead of a «cosmic brother in intelligence».

Having said all that, **it follows that man - in the form that exists today**, namely a protein-nucleic primate (monkey),
cannot live anywhere else but on Earth, which bore him and is not fit for space travel.

2. Proposed conceptual solution («full cyborgization»).

The author sees **escape** in **the radical change of form of** human **existence** - in its **self-trans forming. In changing the «given by nature» body and brain with artificial.**
In replacement of this type of material «non-organic» carrier substrate (such as silicon or graphene) for any open space, and the climatic conditions of the most planets in the universe are not only not harmful, but even more favorable! Our semiconductor devices work much better in the conditions of space vacuum, cold and weightlessness than in an atmosphere containing oxygen, with its dusty particle pollution and chemical reagents, humidity, electromagnetic fields, gravity, etc.

Until recently, such a proposal (to replace the natural substrate of human with an artificial) was considered science fiction and almost a delirium.

But let us reflect calmly and soberly without putting «monkey» emotions!

First, in terms of the nature of this no fundamental prohibitions which means that is theoretically possible.

Second, «the sensible man» through his labor and his mind transforms the surrounding nature

since his appearance in that role. But if we remember that he is also part of nature, why not start to transform nature in itself, its own nature? The man actually does just that through medicine, tripling ultimately life expectancy and reproducing throughout the planet - humanity is approaching 7 billion and is now the dominant species on the planet. Only that even today's rates «cyborgization» have not been high enough in the face of danger threatening people.

Third, replacing Darwinian natural selection with artificial socio-historic man is deprived of the opportunity to develop evolutionary naturally and may make changes in the «structure» only artificial. Natural selection may continue, but not at this rate that would be substantial and significant in the context of the problem. And the Earth cannot undergo or provide the opportunity for human natural selection and conditions do not exist in itself, but a fact in space.

Fourth, leaving the animal world and starting the rapid development in the socio-economic aspect, as substrate and human physiology largely remains an animal (higher primate). (In our known scientific data, the human genome is different from that of the chimpanzee only three genes, which is only 2%. The average ratio for the type «one» weight to that of the brain is also an example of 2%. The efficiency of Economy – the extraction of a resource to its utilization is also of the order of 2%).

The more power given to the individual scientific and technical progress, technique and technology, culture and civilization, the more noticeable and significant becomes the gap between «biological» and «social» beginning of man. In the last 300 years since developed «modern science» and especially in the last 50 years, according to Vernadsky humanity has become planetary geological force and has acquired the real possibility of self-destruction. This self-destruction may be as fast (through wars and technogenic catastrophes) and slowly – through the destruction of the ecology of the planet and their habitat. At some point may happen that an unthinking, emotional, instinctive, close venal, frankly “animal” act of someone «decides», can one movement «keying» and trigger such scientific technological sequence that will destroy him.

Fifth, imperceptibly, but too quickly, the technique and our technology «become smarter»; they have acquired a «nervous system» in the form of the Internet, with «artificial intelligence» in the form of supercomputers; «chipping» is in our daily routine. It may happen so that «our smart houses», «our smart cars» and «our smart factories» one day to acquire a planetary consciousness. They will also coordinate human effort that we ourselves will send this more sophisticated than us kind of intelligent beings to utilize space, but already without us.

While this has not yet happened, the same equipment and technology today gives humanity a unique chance to «replaces the natural body and brain with artificial» and the chance to make a complete «cyborgization» of the mankind.

Then, how to take advantage of this chance, how to implement it and thus be saved from impending doom?

3. Proposed scientific decision («Science settleretics»).

The author of this article, which more than ten yearsbegins to ask questions similar to those found here, **offers [1-16] to create a new interdisciplinary (bioengineering) science** to solve the problem raised in the context of the proposed concept.

Even then, he suggests that science can be called «***settleretics»*** from the English word ***«settler»*** **and by analogy with «cybernetics» and «synergetics».** He meant « **transfer»** ***(«resettlement»)*** **of information from neuro-humoral system (mainly from the brain and spinal cord of people) on equivalent in structure and function of nosn-organic material substrate carrier.**

On the basis of the fundamental attribute of the information to be «invariant regarding the carrier». (Mathematically this is shown by graph of so-called « **square commutative diagram»**

and is expressed in terms adopted in the «
theory of categories»
by «
functor»).

Existing at this time **discrepancy between** the wide, safe, but not so precise **tomography** scanning of the whole brain
and the introduction
of strong influence and few traumatic
electrodes
in the brain tissue,
is decided by the author
with the hep of TRIZ by G.S. Altshuler, by
offering mass using of multiple micro- and even nanoelecrodes or so-called sensors-«spies» (author's term).

Quantity will correspond to the quantity of studied objects (e.g. in the range of **50 billion neurons** in the human brain) that will not traumatize and will not affect the normal operation of the object (excitatory formations), because of its small (micro and nano) size,
but will run around the clock monitoring throughout the life of the organism.

This kind of **nano-neuro-sensors** must have a «**synergistic property», i. e. to organize themselves and to form a working system**
where they will be stationed after their passive delivery (for example in the form of capsules with blood flow or with active transport through the bloodstream and site assembly from micro-, nanorobots or biological cell-carriers (including viruses)).

In **structure,** this kind of **sensors** are **artificial graphene membranes with a skeleton** (tubular or spherical), which will further the role of
semiconductor computing performing, receiving and transmitting device.

The introduction/extraction of a large amount of information, you will have sensors to be structured **in a cellular network** with hierarchical stepwise sequential **compression of data** so that outside

body to transmit a small amount of aggregated data. For example, changes in the coefficients of the approximative curves passing and transmitting functions of the models of neurons. The actual **recepti on/transmission by radio or optical communication channel** can be implemented via an implanted in the nervous tissue **specialized chip transmitter.**

Based on information received from the sensors information the **superneurocomputer,** which will be located outside research body through **a set of special mathematical methods** (the author suggests using the « **theory of functional lines and cores Wiener-Voltaire») set in the software, interactive and iterative will reconstruct the** natural neural network studied **in artificial model - a copy,** more and more **will close the copy to the original,** while **the gap** between them in structure and function becomes **negligible.**

Working simultaneously, **the original and the copy** will exchange information and will form a **p arallel system,** called the theory of reliability « **system with hot standby».** If natural neural cells failure, their functions are borne by « **prosthesis»** - an artificial model of the neural cell. At some point, instead of all 100% natural defunct cells will begin to work 100% artificial model neural cells dentures and body as a whole will not even notice this replacement!

In practice this means that the **man will obtains «practical immortality»**. It will have the ability to choose « **body-car rier», which can change** and which will best match the specific environment that he will live. It can be combined with many other representatives of «digimatic» mind in a general **supersystem in Planetary SuperBrain (PSB)** . It will not be different from the real and in which he will feel absolutely happy! He

can solve all current problems related to
limited land resources, socioeconomic, political, ideological, psychological, biological and others

inequalities of today semi-animal form of existence.

And finally can begin **cosmic exodus!**

4. Attribution of the settleretics as a science («mission, goal, objectives, subject, method...»).

So can briefly make the following **attribute signs of new science settleretics:**

Settleretics' mission – achieving **indestructibility of a human civilization** through its totally cosmic displacement beyond planet Earth.

Purpose of the settleretics – achieving **practical immortality of a man** as a rational being and bearer of the mission to outer migration.

Settleretics' task - **full cyborgization of the body and the brain** of a modern man (who genetically is still 98% primate hominid i.e. monkey).
Exemption from archaic animal
inheritance,
exchange
of the mortally, limited and poorly bioavailable (protein-nucleic, water-lipid)
body and brain of the man
with

immortal,
multi-touch and strong artificial (metal, silicon, grapheme, etc.) material carrier.

Subject of the settleretics – **neuro-humoral system** of humans and animals, their structure and function **of scientific and technical progress,** existing and projected «high technology» in order to linking them to the objectives and tasks of the settleretics.

Method of the settleretics – «**digitize» a neuro-humoral system,** i. e. creating such «materials, methods and devices» (e. g. scanners, plus nanosensor-«spies») and «computer programs» **that are able «to pass»**
(move, copy) all necessary
information from the original neural carrier to the equivalent
by structure and functions
artificial neural carrier
successor (e. g. made by silicon or graphene into the superneurocomputer managing the «body» of the robot), through lifetime and nonstop «symbiosis» with him.

English-language equivalent **of the settleretics is** ***«uploading»*** or ***«upload»*** (by Raymond Kurzweil), « ***E-Man»***
(by Alexander Bolonkin).

5. Offered advanced technical solution («Harvard's field nanotransistor»).

According to information recently made known to the author, **the appropriate for the role of**

the sensor-«spy» nano-scale sensor nas been already created
! Unfortunately, this sensor is not have been created in the author's homeland – Russian, but in **America**
. Scientists form
Harvard University
, leaded by Professor
Charles Liver (Charles M. Lieber)
, together with a group of reserchers from
the Massachusetts Institute of Technology
. Only it is been called by another name: «nanoFIT» («nanoscale field-effect transistor» or «nansized FET»).
Source:
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17–24
],
primarily,
Science, 2010, DOI: 10.1126 /science. 1192033
(см.
http://news.harvard.edu/…icate-touch/
,
http://cmliris.harvard.edu/publications/index.php
)
[2]
.

· But, structurally and functionally, this is the eactly sensor-«spy» from the settleretics. As he is created for non-traumatic self-penetration in the membranes of the nerve cells with purpose for monitoring of the occurring electrochemical processes.

· It is true, however, that the creators of this sensor is not put in front of you so large «settleretics» missions, goals and objectives, and publicly declare more modest, scientific and medical purposes. But the history of science teaches that public declarations and real-funded scientific and technical developments may differ materially. (A textbook example is research into radioactivity in the 30s of the 20th century).

· So, it would be unfortunate Russia once again be late! Once again, and for one reason only - her miserly attitude to the timely and worthy of funding created by Russian scientists

scientific developments once again - losing their own research priorities. Usually it ends in the same way – at a later stage buy three times more expensive «import», but basically our developments. In this area, as well as already mentioned precedent with «radioactivity», we can hardly hope that someone will sell so important for the defense of the state high technology. Even for many, but for a lot of money «our black gold»!

For the most profound regret, understanding of how justified thesis in the title of this article and summarize it
remains accessible only to the author
[2]
,
and the few colleagues-transhumanists-imortalists.
They do not have sufficient financial and political opportunities to be able to put into practice ideas proposed by the author.

And, during this time, **the momentum of humanity momentum exists in «traditional» way,** with spontaneous and explosive
multiplication «hyperbolic» Law,
predatory, narrow self-interest, short-sighted and extremely inefficient use of scarce and non-renewable resources of the planet, every moment will destroy as humanity itself and the planet!!!
According to forecasts of futurologists have become known to the author, this date is approaching and they believe that it will occur
in the first quarter or first half of the 21st century.

This, ladies and gentlemen, means that we ourselves will live to see it!..

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[1] ***Корчмарюк Я. И.*** **Сеттлеретика, или «оцифрованный» мозг**. (Секционный доклад)

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[2] В русскоязычных СМИ и Интернете, сообщения об этой новости, можно прочитать здесь: «Нанозонд объединит человека с машиной», Химия , Биология , Нанотехнологии , 13.08.2010, 16:29, http://rnd.cnews.ru/natur_science/news/top/index_science.shtml?2010/08/13/405086 ; «**Ученые создали нанотранзистор для изучения живых клеток»,** РИА«Новости», 13.08.2010, 10:46, http://www.rian.ru/science/20100813/264714446.html ; «Новые наноразмерные транзисторы для изучения внутренней среды клеток», Новости нанотехнологий и нанобизнеса, 13.08.2010, 14:23, http://www.nanonewsnet.ru/news/2010/novye-nanorazmernye-tranzistory-dlya-izucheniya-vnutrennei-sredy-kletok ; «Наноразмерные транзисторы позволят проводить чувствительные исследования в клетках», Новости мира инноваций, 16.08.2010, 13:30, http://www.innovanews.ru/info/news/nano/3531/ ; «Нанопровод для клеточной пункции», ChemPort.Ru, 17.08.2010, 10:38, http://www.chemport.ru/datenews.php?news=2187 , и др.