



Mini Review Article

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Frontier and Integral Aspects of Neurobiology

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The fact that neurobiology is a frontier science is reflected in its very name. And since every single scientific discipline is built on some characteristic INVARIANTS. This, in fact, is reflected in their specific terminology. So the very understanding of the essence and construction of neurobiology requires, firstly, to generalize the constituent disciplines of neurobiology, maximum rigor/accuracy in describing the basic models of each constituent discipline based on its INVARIANTS. And secondly, a rigorous systematization of conjugate scientific disciplines and their models is required to describe boundary effects and identify generalizing INVARIANTS.

Fulfillment of the first condition according to the methodology of strict sciences, such as physics, is achieved by mathematical notation in canonical form. This is not possible in all biological sciences, let alone psychological ones, but attempts in this direction are being made even in psychology when creating digital images. But the most productive approach in the "non-strict" sciences is the construction of maximally strictly formulated postulates, which are actually both verifying PRINCIPLES and methods of finding "bricks" of a given scientific discipline. Along the way, Basic Questions are also identified, which, in principle, are far from always and can be solved within the framework of a single scientific discipline.

Such Basic Unresolved Questions exist in the most general form and in biology as a science of LIFE. Modern Biology, as a science, was formed on Earth and, of course, its main sections on life on Earth. Although there are now many fantasies about possibly other, inorganic life, but the special position of the carbon atom in the chemical table and the ability of this particular atom to create the building blocks of history - fullerenes, give reason to believe that organic life is most likely in our entire Universe. But regardless of the atomic base, LIFE itself largely falls out of the

physical laws describing nonliving nature. This fallout is primarily due to time. If physical models consider dynamics of fundamentally indistinguishable particles (of different scale) and the same crystal structure is built (built up) by strict repetition of the unit cell, then the very brick of organic life - carbon in a primitive fullerene is, firstly, fundamentally disproportional, that is, strictly speaking, not exactly repeatable, translatable, and secondly, already "remembers" its prehistory in the other end of the universe. It is carbon fullerenes that are an element of the chemical chain reaction which breaks the usual statistics of Inanimate Nature, preserving information about the past and thereby EXPLAINING the DEVELOPMENT OF PROCESSES, making the probability of the emergence of life non-zero. Carbon fullerenes are in fact cosmic sperm that has taken root in the "womb" of the Earth. That is why it is necessary to take into account the properties of carbon in the first place, while modern pharmacology deals mainly with catalysts - other chemical elements and their compounds.

What to say about a cell which "under the guidance" of DNA creates its own kind, forming all living things. Therefore, in purely experimental terms the fundamental distinctiveness of living particles, the "correctness" of dynamic transformation should be traced already at the cellular level, not just the increase in the number of cells and growth of organs/organisms in time. But such constructivist "construction" of LIFE based on DNA-RNA, the foundations of which are formed in the form of the mathematical LIFE Game model, turned out to be incomplete without taking into account the Dynamic Element of Life inherent in the LIFE Music even at the cellular level.

This statement, of course, also applies to the intermediate state between Inanimate and Living Nature: the viral state. The

pandemic-induced purely speculative approach - simply finding new viruses and their modifications - is futile, because it does not even satisfy Koch's postulates. So, in essence, it is not much different from a stupid search for combinations of combinations of atoms. And with such an unconscious approach, it is quite natural that the evolution of a semi-living virus is now ahead of both the progress of virology and antiviral measures on a global scale.

At the other pole of neurobiology, skipping both the construction and operation of individual neurons and synapses, and even skipping the formation and operation of neuronal networks, which is already quite strictly coupled with the corresponding mathematical models, let us immediately touch the higher form of nervous activity - CONSCIOUSNESS.

The pursuit of Understanding is the basis of Reason on the individual level, just as the reflexes of a living organism are the necessity of eating, breathing, and reproducing. And in purely logical terms, this problem of Understanding also involves an individual Paradox: Understanding the World involves Understanding HIMself. To say what taste, color, sound, hot or cold, or what pain, we can, it would seem, easily. But it's not at all easy to understand why we experience these different sensations. And although a lot has been understood from the discovery that a frog's legs reflexively twitch to the neural networks of the brain, even technical questions, in the details of the most complex constructions remain a lot. And this is not unusual, given that Cognition is a kind of recursive formula containing a paradox, where it is both a tool and simultaneously an object of investigation.

This paradox can be broken if we understand/understand what level of cognition we want to describe. There is a principle of Logarithmic Relativity [1-12] that, in principle, allows deepening our Cognition both of Nature and Man as deep and as wide as we want. So the Principle of Logarithmic Relativity, provided the set of invariants for description of cognition within the models of separate sciences is rigorous and complete, allows systematizing them and revealing the Boundary Effects which determine the progress of Science.

And in the Collective Consciousness actually the Striving for the Understanding is the basis of origin of the simplest kind - legends, fairy-tales and fantasies, and in a more developed kind - art and science, which diverged greatly in the used terminology and categories, even from Aristotle. And now even the related sciences have diverged to the point of complete incomprehension. And this is the main problem of modern Science, which has stopped defining the Basic Concepts in the Collective Consciousness. And in this regard, as a consequence, we now have a regression of the Collective Consciousness and primitive, not at all scientifically

grounded actions of the entire human community. This disruption of Collective Consciousness is the actual problem of the sciences themselves, including Neurobiology.

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Conflict of Interest

No conflict of interest.

References

1. Ordin S. V., "The Meaning of Life (dedicated to the memory of Lev Termen)", In the collection in the series "From the history of the Ioffe Physicotechnical Institute, issue 8. PHYSICAL TECHNOLOGIES IN FACESAND EVENTS. Physicotechnical Institute named after A.F. Ioffe RAS, 2019. 268 p. 157 ll., ISBN 978-5-93634-061-1,
2. Ordin, S.V., "Dynamic Element of Life", NBIKS-NT, // NBICS-Science. Technologies. 2019. Vol. 3, No. 8, pp. 66-75
3. Lectures of the St. Petersburg Meeting of Nobel Prize Laureates "Science and Human Progress", June 16-21, 2003
- Gyver: "Electric Biosensor",
- Heeger: "Gene Sensors: Recognition of Specific DNA Diseases",
- R. Laughlin: "The End of Reductionism",
- R. Mössbauer, "Physics of Neutrinos",
- de Dune "Singularities in the origin and evolution of life"
4. A Einstein (1965) "Physics and Reality", Science Press, Moscow: 358 pp.
5. Stanislav Ordin (2017) Book: "Refinement of basic physical models", Lambert, Project № 163273, ISBN: 978-3-659-86149-9: 82 pp.
6. Ordin SV (2017) Logarithmic relativity", Website of the Nanotechnology Society of Russia: 10.
7. Stanislav Ordin (2019) Book: "Modern Physics", Lambert, ISBN 978-620-0-48094-1, 196 pp.
8. S. V. Ordin (2017) Methodology of science, J. NBICS-Science. Technologies No. 1: p.53-65.
9. Ordin SV (2017) "Scientific misconceptions. Part II. Interweaving and intersection or confusion?", Website of the Nanotechnology Society of Russia, 16.01., 10 p., <http://rusnor.org/pubs/articles/15013.htm>
10. Ordin SV (2020) "Nano-virus" // NBIKS-Science.Tekhnologii T. 4(11): 173-180
11. Stanislav V. Ordin (2020) Science and Society during COVID-19 Pandemic", Letter to Editor" in the upcoming issue of IAAM's official diamond open access journal "Advanced Materials Proceedings", pp. 1-2. (ISSN: 2002-4428, eISSN: 2000-441X),
12. Stanislav Ordin (2020) "NANO and Frontier Aspects of Virology" prepared for the European Journal Medicine and Health Science, Volume 2, Issue 5, pp.1-4 October -DOI : 10.24018/EJMED, ISSN 2593-8339, Impact Factor 1,62.