



Science is Ruminating: Crack Its Envelope and Make a New Beginning

Ashok Kumar Mukhopadhyay*

Department of Laboratory Medicine, All India Institute of Medical Sciences (AIIMS), India

Editorial

While the world has been taking a new turn and the humanity has been crossing the threshold for next two century's science, this editorial is to familiarize the investigators of science in general and the readers of this journal in particular with the new worldview, this emerging new science has been building up. This new science is not coming out as a result of rumination of the swallowed but undigested stuff of historical mistakes or blunders, omissions or commissions in science! This is not a result of pushing the envelope of science to extend its horizon and the apparent depth! The new science is coming out as the result of cracking its envelope at the boundary of the universe and bringing science face-to-face with its Source (Figure 1).

What is the envelope of present science? Present science works under the umbrella of three constants; nothing can move faster than the light, Einstein's velocity of light constancy, which excludes simultaneity of events, Planck's constant that excludes continuity of events and entropy barrier that excludes identity of events. There are events in this universe which could be simultaneous, continuous and even identical! Under the present umbrella constants, science cannot account for these events. In neuroscience, the cerebral cortex acts as the last envelope and cannot account for brain-bridging, i.e., brain to brain transfer of information [1] and autoscopic phenomena such as Out of Body Experience (OBE) etc. [2].

The nature, human beings and science are, however, not isolated islands. The human-made constants in science point towards the limits of human brain to express behaviorally the result of cognition. Cognition is an unending process by the faculty of the cognitive organ, which uses the brain of us, the scientists included, to express the result of cognition behaviorally, objectively and sensibly. Fair enough! The constants determine the rules of nature within the domain of nature superficial to them. Nature does not end under the umbrella. Cognitive process too does not end with the limiting constants. Cognitive evolution of the organ brain is a continuous process.

What is the Source of science? The science is sourced, as could presently be comprehended intellectually, from the *Essence* of the Multiversity, the *essence* from which several universe(s) are generated and in which several annihilate. This is the Objective Reality (OR), the largest cognitively comprehensible systems for investigation.

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*Correspondence:

Ashok Kumar Mukhopadhyay,
Department of Laboratory Medicine,
All India Institute of Medical Sciences
(AIIMS), New Delhi 110029, India,
E-mail: mukhoak1953@gmail.com

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Figure 1: Let the science-shell crack at the border of the universe. The science will be face-to-face with the Essence of the Multiversity.

How does science could reach the Source, across the border of the universe? There might be at least four ways as pointed out by Max Tegmark [3], in his approach to the issue of multiverse! The shortest route, I think, not mentioned by Tegmark, would be through Zero-Point-Energy (ZPE); see infra.

What happens to science during its transition from systems universe to the domain of systems multiverse, when science stands face-to-face with its Source? Initially a resonance! Approach Bottom-up becomes Top-down! Inside-out and outside-in phenomena! New information impregnates the cognitive faculty of mind! This new Information splits! A new time begins then. A new kind of special organization starts there. This organization is self-organization, organization by "life" and organization by consciousness. Self-organization is masculine and repetitive ad infinitum but very strong in logic. Organization by "life" is feminine that generates diversities but with aesthetic flavor. Direct involvement of consciousness in organization makes the organization "willful" and creative.

Let us describe what could be the bottom-up approach for science! The pathway from the bottom to the open terrace at the border of the universe could be categorized, as shown in the Table 1.

Looking at the Table 1, the investigators wonder about the possible meeting points between local science (space, time, matter and energy) and nonlocal science (of mind, self, life and consciousness). It is expected that the flight of nonlocal science is to find out some landing port. On the other way round, the plane carrying the members of local science is expected to fly to nonlocal domain from some airport!

From the physics point of view, the best meeting ground is the Zero-Point Energy state (ZPE), the space empty of matter. Another possible common ground between local and nonlocal science is the science of information. This is about information and its various states! Information is there in both silicon chips as signal or as one of its states

Table 1: The pathway from the bottom to the open terrace at the border of the universe could be categorized.

1	The domain of investigation extends from local science to nonlocal science at the depth. In the intervening Deep Science, there is the cognitive labyrinth also called the systems psyche or the orchestrated and hierarchically structured decision-making apparatus of nature and the intelligent being
2	Extension from the surface towards depth begins in the "space", which is empty of matter (Zero-point Energy) to the boundary of the universe followed by a transition to the multiverse (multiple universes). One encounters dark energy, some exotic matters, dark matter, subtle part of "life", black holes and worm hole that opens up eventually in the white hole of the multiverse
3	The pathway from the bottom begins from signal state and extends to the wisdom state of information. In between, one encounters several information states namely, digitized information, non-digitizable (but factorizable) information, information that is non-digitized and non-factorizable, and far deep, the information manifold. There is one phenomenon, the Information-split phenomenon that ushers the beginning of Time
4	In the context of consciousness research it is as if one has been pushing the envelope from the brain-bound consciousness to supracortical consciousness, and finally opening up to the brain-independent consciousness. In between, there are different phases of death-phenomenon with experience of near-death, transcendental death experience, transformational death experience and the experience of getting reborn in the same body

within DNAs and also in the cognitive faculty like mind. The cognitive apparatus operates as the inter-phase between the brain-bound and the brain-independent consciousness. Similarly, for neuroscience, the cascading layers between neural signal and consciousness show this continuity. We are, therefore, to formulate research ideas, research questions and research hypotheses in following five areas namely zero-point energy, science of information, cognitive organ, neuroscience and cell biology. Describing these five areas, we will conclude this editorial saying specifically on consciousness research.

Zero-Point Energy (ZPE)

It is time to get all of us focused into what was abandoned by Einstein almost a century back while formulating his Special Theory of Relativity, the space empty of matter, the Zero-Point Energy (ZPE). The new deep science begins at ZPE [4,5]! Where cosmology and biology supposedly meet? Most likely at Zero-point Energy!

Where Physics and Psychology supposedly meet? Perhaps at Zero-point Energy! Where conformon photon, phonon supposedly meet neutrinos? Most possibly at Zero-point Energy! Where information hologram supposedly meet quantum hologram? Most probably at Zero-point Energy! Fine tuning of ZPE is the most important requirement for origin of life-form. This is also the site for signal-information transition! ZPE is the gateway for the shortest route to flow to the essence of the multiversity. Understanding of this ZPE and its scientific potential, therefore, is the need to extend the horizon and the depth of the present science.

Science of Information

New science demands a different way of looking at the information [6]! Several research questions could be formulated on this new frontier. Is information an independent entity? Does it have an independent existence? Should information be an independent entity with an independent existence then what it is independent of? The answer will be that Information is independent of space, independent of time and independent of the world constituted by space time and visible energy! What is this world independent of space time and visible energy? Is it not the pre-quantum or sub-quantum nest of nature? Further, what is the nature of information? Does it have a structure? Does it exist in one or multiple states? What is their geometry? Does information have an independent operational mechanics? Could this operational mechanics be linked with known mechanics in science, the quantum mechanics or classical mechanics?

The pathway from the wisdom to signal and from signal to wisdom indicates a different frontier of the new science. It is said that in the Tegmark model of the multiverse type IV, signal and wisdom coincide.

The source of space and time in emerging new science is information. Information splitting by operation of mind or mind-

Consciousness	Transit to the Multiverse Boundary of the Universe	Wisdom Information Crystal	Brain-independent consciousness
Cognitive Labyrinth Systems Psyche Decision-making Organ	Subtle Part of "Life"	Information Manifolds	Supracortical Consciousness
Life, Self Mind	Worm Hole Black Hole Higher Dimensions	Non-digitized & Non-factorizable information	Transformational Death Experience
	Some Exotic Matters Dark Matter	Non-digitizable but factorizable information	Transcendental Death experience
	Dark energy	Digitized information	Near-Death Experience
		Various Information States Information-split Phenomenon	Death Phenomenon
Space, Time, Matter, Energy	ZPE Space empty of Matter	Signal	Brain-bound consciousness

LOCAL & MATERIAL SCIENCE OF TIME, SPACE, MATTER & ENERGY

Figure 2: Essence of the multiversity/consciousness-Mother nature multiverse.

like structure in nature ushers the beginning of Time. *Information* splits into form (space and time) and energy. This energy is invisible or dark energy, which is converted into visible energy by life-form, any living entity such as neurons in the brain.

What is the source of information? A non-living entity cannot generate information! To get into the source of information we are to delve into further depth of nature, in the sub-subquantum nest of nature!

Cognitive Organ

Brain is not the cognitive organ. Cognitive organ consists of cognitive faculty with specific and inter-cogged operations. The consequences of cognition are expressed as behavior by the brain. Is it possible to formulate a research hypothesis on cognitive organ? Perhaps yes! Mind is not the only cognitive faculty. There is faculty of self as well. Cognition is possible only in the presence of "life". In absence of "life", there is no observable cognition! Life itself is another cognitive faculty. Quality management of information by the faculty of mind, self and "life" happens under overarching cognitive operation of consciousness. All cognitive faculties namely consciousness, "life", self and mind deal with different information-states and together form the systems psyche or the cognitive organ [7]. Cognitive faculties are disposed across sub-quantum and sub-subquantum nature.

There is a ladder of cognition [8] starting from noise through signal to information, knowledge, experience and wisdom. There is a multi-layered canvas of cognition [9] with two-layered *embroidery* of events (quantum and classical) on the surface. In the middle there are three *layered fabrics* (mind, information and memory, emotion and intelligence, and at the depth self and life). The base of the canvas is five-layered, made of supportive consciousness, participating consciousness, intervening consciousness, creative consciousness and consciousness as an unfathomable ground. All constitute the subject of the new science!

Neuroscience

Traditional teaching of neuroscience is that nervous system, the brain in particular, is the source of consciousness and is the only organ of cognition. There is no unequivocal evidence for this. Cognition happens in brainless animals (sea urchin, jelly fish etc.), in plants, in unicellular organism such as bacteria and slime moulds. Limited cognition could be observed in proteins! The brain is never been proved to be the source of consciousness!

The research hypothesis for new science is that consciousness, cognition and behavior form the vertical axis of new science. With this shift of power to consciousness, the neuroscience becomes upside down and in broader sense undergo inside-out and outside-in experience! The brain could be considered as the organ of behavioral manifestation that follows cognition. There are layers in between signals in the brain and consciousness [10]. These layers are occupied by various information states and faculties of cognitive organ. The purpose of the brain to evolve as an organ is to unify the consciousness without with consciousness within the brain and operate as a transmissive organ of the Source.

Therefore, neuroscience might be investigated considering the brain as the behavioral organ [11]. This goes far beyond the sensation and perception and moves towards concept formation, hypothesis generation, theory formation and finally formulation of

the Worldview. The role of cerebral astrocytes to contribute in mind-like operation such as thinking is a new frontier. Another astrocyte-rich organ, the cerebellum, has been reported to participate actively in the quality assurance in thinking [12].

The layers between signal and wisdom, as mentioned earlier, make the new frontier in neuroscience! Neurobiologically the science has to extend from tripartite single neuro-neuronal-astrocyte synapse to small group of neurons, and large group connectomes, to the terrace of supramodular cerebral cortex. Also relevant is the whole brain integration at the classical, quantum, and at elementary phenomenological level.

On the terrain of deep science what happens to our brain and body when the being leaves the domains of cause time space and pleasure, breaks respectively through silence, stillness emptiness and nothingness and begins cognition of immortality eternity infinity and *Ananda*? How the body physiology adapts with such situation and how the biology of cell responds?

Cell Biology

Present science has started looking at biological cell as a combination of molecular robots with automated cell signaling. The process has ignored the autonomous faculty within a cell. Cellular cognition has been emerging as a new branch of cell biology [13,14]. Cognitive faculties have been suggested to have respective biochemical representatives [9,15]. On the ladder of molecular cognition, primary, secondary tertiary and quaternary protein structure could be related respectively as signal protein, informed protein, knowledgeable protein and experienced protein. Spherical protein (e.g., histone), in this sense could be the wisdom protein [8,9,15]! In new science, the cell is necessary to be considered as automated and autonomous unit of life. The new research idea is centered on signalosome, the Supramolecular Organizing Center (SMOC) within the cell which is supposedly the junction of automation of cell signaling and autonomy of cognitive faculty operating within the cell. Supramolecular conformational change involves participation of ZPE, information-states, dark energy and "life". How? This is the subject of this new science.

Consciousness Research

Finally, one has to distinguish neuroscience from the science of consciousness. Consciousness cannot be explained by quantum physics or computational neuroscience. True, quantum physicists understood the role of human consciousness in measurement. Great quantum physicists, however, respect consciousness as a deeper existential substance as nothing is behind or deeper than consciousness. Others cheer to remain relevant in science of consciousness by entangling consciousness with QM, accepting that there is no nature beyond the realm of quantum physics. In new deep science, there are five levels of entanglement nested one within the other; quantum entanglement that signifies entanglement of matter, energy and signals, information entanglement in which living entities get informationally bound, entanglement of two or more self(s) as found between the lover and the beloved and between the master and the disciple, entanglement of a number of units of lives as observed between the members of a family, and at cellular level in a bacterial mat and in cellular aggregates as tissues. Finally, there is entanglement by love! This is entanglement with the *Essence* of the multiversity, consciousness-mother nature!

In the new construction, quantum physics (nest II) is deeper than classical physics (nest I), as presently known in science. In deep science, there is sub-quantum nest of nature (nest III) and still deeper is the sub-subquantum nest (nest IV). Consciousness is the deepest (nest V). This forms the Pentaune (Five-in-One) model of nature-consciousness. Every nest can be defined. Every nest has operator(s). Operator in every nest has operational mechanics. Mind, information, intelligence and emotion play from the sub-quantum nest. The faculty of self and the subtle part of "life" execute respective operations from the sub-subquantum nest.

In consciousness research, intentionality and purpose matter and this investigation is intertwined with the life-style of the scientist. The purpose of "life" of a consciousness scientist is to find out the answers of three fundamental questions: Who am I? What is this world? What is God? The questions are related to three absolutes; Humanity, Science and Spirit. "I" is that which evokes the sense of self, me and mine. World is the nature that science investigates. God, in the deep complex forest of language, is the source-field for science; the "Light", the effulgence beyond dark matter and dark energy for a spiritualist; and personification of the source-field and the light, to a devotee. The problem with most of us is that being in the topmost situation of science humanism or spiritualism we continue ruminating and wandering inside a wormhole. Top ones, at least, are to come out through white hole to get into the Objective Reality (OR), the Source. The source is the *Essence* of the Multiversity, which is synonymous with Consciousness-Mother Nature.

For developing this new science we have used words like consciousness, life, self, mind and information with which science is familiar with. Consciousness, life, self, mind and information are also five constituents of the systems psyche. This construction may appear soul-less to many people but it is not life-less. Nor does it eliminate the faculty of self! The proposed model is surely conscious and mind-full. This is informed as well.

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