

The Paradox of Life

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GENOPSYCH

A Coinage in the Foundry of Biology

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Indira came to my life and walked with me for twenty five years so silently. She looked after the family front without bothering me. And that gave me plenty of time to concentrate on my job and focus on a variety of research topics. I used to trouble her for a cup of tea at odd hours at 2 AM or 3 AM while in my study. Years later when I bought an electric mug she neatly packed it back. I know that I can never pay her back nor can compensate. Indu I am indebted to you.

I dedicate this monograph on genopsych to Indira – my co-traveler in life.

Prelude

Genopsych: A Coinage in the Foundry of Biology

It has been among my privileged gratifications to associate with Plant Biology in the capacities of a student, researcher and teacher for more than forty years, which exposed me to the delights offered by the dynamism of Botany, Cell Biology, Plant Water Relations, Stomatal Regulation, Physiology of Abiotic Stress Tolerance and a satisfying career at Rajasthan Agricultural University, Bikaner. I lately started to realize that besides other known benefits, the academics makes one contemporary to a galaxy of gifted persons, both young and old, celebrities and oblivious, proximal and distant - with whom one is facilitated to interact and enrich the urge of sharing and learning. The book-*Genopsych: A Coinage in the Foundry of Biology*, by Dr. DMR Sekhar is a transient destination amid such an incidental co-travelling over a path of conversing, thinking, articulating, synthesizing and crystallizing on the topics of Evolutionary Biology and developing a logistics of Consciousness as crux of life and life molecule-The DNA. It is like reminiscing about a journey of the metaphor, conceived as Genopsych, now pulsating and reverberating in the foundry of Biology, in a mould of a new coin.

The incident of organizing a National conference on *Gypsum in Agriculture* at RAU, Bikaner brought me in contact with Dr. DMR Sekhar, who was with a degree in Chemical Engineering and a coveted career in Rajasthan State Mines and Minerals Ltd. The Biology was nowhere in sight at that point of time. His first indication of versatility came in the form of PROM (Phosphate Rich Organic Manure) which was and still is a sincere effort to provide a economical and sustainable alternative to costly inputs of phosphate fertilizers. The Biology crept in *via* lanes of informal discussions on the topics of Plant Intelligence and soon both of us were trapped in by the exciting

discoveries of J.C. Bose to Baluska, Mendel to Craig Venter and Darwin to Dennett.

I may know about the proficiency of Dr. Sekhar in chemical engineering, mining and mineralogy by hearsays. But I am the first hand witness of his hold, information and knowledge of Biology in general and Evolutionary Biology in particular. By all means Dr. Sekhar is a contemporary Biologist gifted with faculty of raising unorthodox questions and trying to explore answers within the frame work of orthodox science. He has adequately acknowledged the interactive help he has received through his wide circle of friends; it's my turn to acknowledge that Dr. Sekhar enriched my learning in Evolutionary Biology. He was instrumental in evoking a thought process which led to publication of an edited book on *The Philosophy of Evolution (Eds. UVS Rana, K Srinivas, NC Aery, AK Purohit, Yash Publishing House, Bikaner, 2010)*. The book brought debates on physicalism versus Biology and perspectives of philosophy and science on a common platform of Transcience Transactions.

Dr. Sekhar had also contributed a Chapter on *Genomic Consciousness* in the above mentioned book. In the present monograph the idea has been incubated enough to be brought out as a new semantics of Genopsych which would link Biology with its intrinsic trait of consciousness and instincts of procreation, self preservation and free will. It should not only fill an important gap, but should prompt innovative thinking and research in Biology. Even to students of modern biology, the book contains valuable information on advances in DNA structure particularly intra DNA electronic structure and information processing therein.

The book brings forth an assertion that life processes are ought to be understood with laws and principles based on intrinsic characteristics of life to comprehend a simple fact that living systems are different from non-living inanimate objects. How a motor vehicle and its driver can be governed by same set of principles? Seagulls and sea water cannot be one and the same. Seagulls evolve, not the sea water.

This monograph is being published after Open Review at different web sites for over a period of three years. This is also exemplary in highlighting the importance of blogging and cyber networking in sharing and developing scientific ideas.

To those Biologists and Physicists, who opt to be sceptics about the theory of Genopsych, I would like to proffer this question raised by Dr. DMR Sekhar in this monograph "*Most of the confusion is due to the fact that science views life only through the physical laws. If it is not by genopsych then how can we explain the strange properties of*

DNA [self repairing, replication and self programmability], the organisation [non random structures] of genome, the genomic ability to create new information and the execution of genomic programmes, autotomy, instincts, intuition, and placebo effect through one single model?"

Biological Science has been proverbial in acceptance of new concepts, terms, phraseology and paradigms. In recent past, terms like genomics, proteomics, metabolomics, bionics and robotics have supported understanding of the new researches and discoveries in Biology with Plant Neuro-Biology and Plant Intelligence making an entry through gates of Plant Signaling. I wish, hope and foresee that GNOPSYCH treads an identical path. Usage converts coins to currency.

A.K. Purohit

Acknowledgments

During my college days at College of Engineering, Andhra University [Visakhapatnam] I read about primary instincts during the year 1976 just out of interest. During 1997, while I was serving M/s Rajasthan State Mines and Minerals Ltd. [Udaipur] I read about the primary properties of DNA and the process of evolution of species. To my surprise I could not find any science literature that linked the properties of DNA to the primary instincts. Further, the progression of evolution of species towards higher forms appeared in apparent violation of the second law of thermodynamics which was also not discussed in science literature but sometimes the contradiction was ignored.

Since then I made efforts to understand the problem. I noted that Philip Hanawalt, George Wald and Volkenshtein addressed the issue but left the problem at the point of conjectures. It was difficult to find scientists with whom the problem could be discussed as it went across several fields of science. For an engineer without formal back ground either in psychology or in biology or in genetics it was a lonely journey. But I was fortunate as I had opportunities to work with a large number of scientists from various branches due to 1. My passion for science 2. My position as head of R&D of M/s RSMML and 3. My active participation in developing Phosphate Rich Organic Manure Technology. Accessing the books and various published papers on a variety of topics was not easy but the help came readily from Dr. D. Ravindranath, Prof. NC. Aery, Prof. SD. Purohit, Prof. F. Baluska and Prof AK. Purohit.

Sometime around 2000, I coined the word ***Genopsych*** to describe the self ordering property of the DNA/ genome. Conventional science journals would not accept anything that combined psychology with biology or something that questioned second law of thermodynamics. I did publish the initial ideas on genopsych in Saket Industrial Digest a

magazine of commercial interest on the invitation of Mr. Kamal Khokani, the Editor. Over the time I noted that self programming gave better meaning to genopsych- the extensive property of matter in the state of “life”.

After coming to Jordan I posted few lines on genopsych on the pages of wikiversity and left it there. Many months later to my surprise I found a sympathizer, if not a supporter, to the idea of genopsych in JW Schmidt. He welcomed to expand the idea on wikiversity on 14 August 2007 which I did. This greatly helped me to show case genopsych. Gradually Genopsych generated more interest. Those who said that they did not agree also said that I should not abandon the model of genopsych. Encouraged by this I sent a paper on genopsych to the 22 nd Indian Engineering Congress organized at Udaipur during 14-16, December, 2007 with the hope of discussing with other engineers. Unfortunately, I could not attend the congress though the paper appeared in the proceedings. Some of my seniors [chemical engineering Professor]read it and said that was interesting.

Around the same time I came in contact with Libb Thims, an American Chemical Engineer who was totally dedicated to thermodynamics and was known for his exploration of human thermodynamics. Though he did not publish my paper in his journal JHT he guided me to post an article on genopsych as knol, an interactive web forum. Knol site gave me yet another opportunity to further expand and crystallize the idea of genopsych. Libb strongly opposed the model of genopsych. His opposition helped me in improving clarity of my own thoughts. Anand Nair a knowledgeable blogger at sulekha.com also strongly opposed the idea of genopsych and his questions demanded a greater clarity of expression.

At that juncture, Prof. A.K.Purohit, an erudite Biologist, started transcience forum at www.network.nature.com and it was decided to publish an edited book on The Philosophy of Evolution. The book was published in 2010 as Transcience Transactions Vol. I, in which I contributed a chapter on ***Genomic Consciousness***.

My recent knol/blog ***The drive and the direction of evolution*** and the comments that followed at sulekha from Dr. Sreenivasa Rao, Dr. Avinashjee, Er. Krishnan Bala, Dr. Arun Mehra indeed signaled that first stage of Post Publication Open Review of genopsych was over. Now it was time to take the idea to the next stage. I gave the shape of my ideas on Genopsych in the form of a monograph. I have divided the subject into five chapters to improve the clarity and the gist has been condensed to few lines as summary.

I am greatly indebted to John Patrick for his encouragement. Unfortunately, I lost contact with Frederic Peters. I am thankful to Er. John Britto for formatting this monograph.

I am grateful to Prof. A.K. Purohit for writing a Prelude and editing the MS to get it published as a monograph (Transcience Transactions Vol. II) titled ***Genopsych: A Coinage in the Foundry of Biology***. Thanks are due to Scientific Publishers (India), Jodhpur for taking interest and publishing the monograph.

Sekhar, DMR

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