

On the Origin of Species by Means of Divine Selection, Microvita and Transposons

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Abstract

A Cosmic Mind emanating subatomic living cosmic evolutionary intelligence agents called microvita may become the scientifically required explanation for the rapid origin of new, immediately viable species from existing species during climate crises, as well as for forming the first viruses utilized in the origin of protoplasmic life. According to Prabhat Ranjan Sarkar, microvita are emanated by the Cosmic Mind to implement Cosmic desires. With Cosmic approval, microvita may create new and immediately viable species by directing transposons or “jumping genes” in an organism’s genome to transfer and multiply a specific portion of the genome’s shiftable DNA to pre-planned DNA sites in the genome. These rearranged and possibly expanded genomes will generate from current species members a pre-planned new species, pre-adapted to live and thrive in a different environment or ecological niche during periods of catastrophic climate change. The new species requires no further adaptations to the changed environment by Darwinian natural selection, except for minor adaptations that may occur due to the normal genetic variability within a species population. Divine selection, implemented by microvita-directed transposons, regularly creates viable new species that natural selection, based only on the laws of physics and chemistry, could almost never create from existing species.

Keywords: Microvita, Species, Transposon, Cosmic Mind, Evolution, Natural Selection

Introduction -- “The species problem”

When Charles Darwin’s¹ revolutionary book *On the Origin of Species by Means of Natural Selection, or the Preservation of Favored Races in the Struggle for Life* was published in 1859, it was not clear how a biological species should be defined or identified, and this is still the case

today. Using the standard taxonomic categorizing system invented by Carl Linnaeus (1707–1778), every known living organism is assigned a particular species name, as well as hierarchical categories of kingdom, phylum, class, order, family, and genus, and sometimes to particular subcategories as well. Human beings like us are categorized (in Latin) as *Homo sapiens*, where *Homo* (“human”) is our genus and *sapiens* (“wise”) is our species. But there is no generally accepted definition of a species or a general method which biologists agree on for identifying any living organism as belonging to a particular species. Defining what a species is has been a difficult issue in biology for so long that it has come to be called “the species problem”. According to Nicholson², “No term is more difficult to define than ‘species’, and on no point are zoologists more divided than as to what should be understood by this word.” According to Hey³, “The species problem is the long-standing failure of biologists to agree on how we should identify species and how we should define the word ‘species’.”

The most widely accepted species concept is the Biological Species Concept (BSC) of Mayr⁴, who defined species this way: “species are groups of actually or potentially interbreeding natural populations, which are reproductively isolated from other such groups.” But since there are natural populations like bacteria that don’t interbreed, this cannot be a definition that applies to all species.

There is a similar problem in origin-of-life research. Zimmer⁵ describes how biologists and philosophers have been continually unable to come up with an agreed definition for “life”. It may be that defining “life” and defining “species” are related questions that may have related answers. According to P. R. Sarkar⁶, “Life is a constant effort to restore an unstable equilibrium. Life is a fight. Life is moving forward. Life is a dynamic force.” A living being exists physically in a state of unstable chemical equilibrium. An unchanging chemical equilibrium means death for a living being.

In the world today, millions of species of living beings are coexisting, each in a state of unstable equilibrium. C. Mora et al⁷ estimated that there are 8.7 million (± 1.3 million) eukaryotic species. Eukaryotic organisms include all animals, plants, fungi, and protists, as well as most algae. However, only around 1.2 million species have been catalogued in a central database. In any time period, some species populations are decreasing or becoming extinct, while other species populations are increasing, and new species may be arising. Ecology is the science that studies the

relationships of species to their physical environment and to other species that coexist with them. A particular species is said to inhabit a particular ecological niche – a portion of the environment where any particular species' members live in an unstable equilibrium with members of other species whose own niches overlap the niche of the particular species. Over time, environments change and species change. The population sizes of existing species also change. Species become extinct and new species arise.

Today most ecologists and other biologists accept that ultimately, only the laws of physics and chemistry determine the evolution of species. They believe that the production of new species occurs through genetic mutations in the DNA of existing species, following the evolutionary mechanism that Darwin called natural selection. Also called “survival of the fittest” by Darwin, natural selection of some species members is said to increase the adaptation of some species members more than others to their environment, leading over time to the evolution of new species.

Punctuated equilibria as a challenge to Darwin’s natural selection mechanism?

In the 1930’s and 1940’s, leading evolutionary thinkers formed the Modern Synthesis. According to Gould⁸, the Modern Synthesis “reasserted, now in a context of Mendelian particulate inheritance, the adequacy of natural selection as a creative force” in evolution. This view has dominated evolutionary thinking up to the present time.

It was well-known in the 1800’s by paleontologists (scientists who study and describe the history of life through the fossil record) that their findings about the occurrence of species in the fossil record did not match the prediction by Darwin about fossil species in his book *The Origin of Species* in 1859. Darwin predicted that evolutionary adaptation of various species to form new species would proceed in small and nearly continuous steps, and leave a pattern in the fossil record filled with many intermediate fossil forms as animals and plants evolved. Paleontologists did not see such continuity of changes in the fossil record, which showed significant gaps instead. Darwin explained the presence of these observed gaps in the fossil record as due to an incomplete fossil record, and predict that these gaps would be filled in by later fossil discoveries that would match his predictions, when many more fossils had been found. But many further fossil discoveries did not fill in these gaps. Another explanation of these gaps in the fossil record is that species evolve relatively abruptly from one species to another (called “punctuation”). Otherwise, a species remained essentially unchanged (called “stasis”) as the fossil record generally shows, until the

extinction of the species. This theory of the evolutionary process for the formation of new species, as stasis marked by punctuation, was called “punctuated equilibria” by its proponents Eldredge and Gould⁹. They claimed that most species evolution happened in this way rather than by slower, more continuous evolutionary changes. They also found that much of paleontological evidence in the fossil record for species stasis (except during rapid formation of new species) had been underreported by paleontologists because it did not conform to Darwin’s prediction of continuous variation, which had guided the thinking of paleontologists after Darwin. By the 1990’s the gaps in the fossil record had still not been filled by many later fossil discoveries. Punctuated equilibria came to be accepted as an important evolutionary pathway. But when punctuated equilibrium was explained as natural selection that occurs more rapidly during major environmental changes, punctuated equilibrium was accepted as consistent with the modern synthesis.

The discovery of “jumping genes” or transposons may shed light on “the species problem”

A major discovery in genetics in the 1950’s has in recent years produced a possible alternative mechanism for the rapid origin of new varieties and species. Barbara McClintock¹⁰, after studying and experimenting with changes in patterns of color in maize kernels, found that genes in the maize genome could actually move from one part of the genome to another in different ways, producing new patterns of color of maize kernels that she observed. Her discovery of “jumping genes” was mostly ignored by other genetics researchers for many years, until she was rewarded in 1983 by a Nobel prize for her discovery of certain mobile genetic elements. These mobile genetic elements were later called transposons or transposable elements.

Transposable elements (TEs) or transposons are defined as DNA sequences that have the ability to change their position within a genome¹¹. Geneticists and molecular biologists later determined that all species of animals and plants as well as protozoa contain TEs, sometimes in very large quantities. 45% of the genes of human beings are composed of TEs.(Muñoz-López and García-Pérez¹²) Large values similar to this were found for many other species of animals and plants. Only about 1.5% of the DNA in the human genome has been found to code for protein molecules.(Boland¹³) Much of the other “non-coding” DNA, which used to be called “junk DNA” by molecular biologists, has now been shown to largely consist of TEs and DNA from retroviruses. Molecular biologists found that much of this so-called “junk DNA” has various roles in the control of the expression of DNA in normal cellular activities.

Retroviruses are RNA-carrying viruses that have the ability, using an enzyme that they carry called reverse transcriptase, to convert their RNA into DNA and then to insert this viral DNA into the DNA of a cell's genome. According to Grandi and Tramontano¹⁴, "about 8% of our genome is composed of sequences with viral origin, namely human Endogenous Retroviruses (HERVs). HERVs are relics of ancient infections that affected the primates' germ line along the last 100 million of years, and became stable elements at the interface between self and foreign DNA. Intriguingly, HERV co-evolution with the host led to the domestication of activities previously devoted to the retrovirus life cycle, providing novel cellular functions." Retrovirus-produced DNA can be stimulated to produce viral RNA and new viruses that can then escape from a cell after causing damage to the cell.

One class of transposons, called retrotransposons, copies and moves DNA from one part of a genome to another by producing RNA from its DNA, then depositing this DNA in a new location in the genome (giving rise to the term "jumping genes") using the same technique that retroviruses use for inserting their DNA into cellular genomes and later copying DNA from a genome into RNA. Many virologists think that transposons with their associated DNA originated from retroviruses that converted their viral RNA into DNA and inserted this DNA into cellular genomes. But according to Coffin, et al.¹⁵, "Although it is formally possible that all retrotransposons are derivatives of infectious elements, it seems intuitive that on a global scale something more complex (a virus) originally evolved from something simpler (a retrotransposon)."

After the much-deserved Nobel recognition for McClintock's discovery of transposons, the field of transposon research blossomed and has been growing exponentially in the past four decades. Many categories of transposons have been found corresponding to different types of movement of DNA-carrying transposons within various organisms' genomes. Transposons have been found to play a large role in the control processes that determine the developmental rates of organisms. According to Pray¹⁶, "The ability of transposons to increase genetic diversity, together with the ability of the genome to inhibit most TE activity, results in a balance that makes transposable elements an important part of evolution and gene regulation in all organisms that carry these sequences."

Will science require supernatural explanations?

With the inability of evolutionary biologists so far to account for the molecular origin of millions of discrete, reproductively-separated species capable of surviving in their environments, as well as the continuing lack of success of origin-of-life researchers in discovering a scientific mechanism for the origin of life on Earth, perhaps it is time to challenge the current scientific paradigms that postulate the origin of life and the origin of species by purely naturalistic processes. Currently, creationism's postulates about the supernatural origin of species and other categories or kinds of living beings are generally assumed to be untestable science-stoppers. But what if a biology experiment leads to results that can only be explained by the action of a Cosmic Mind? A Supreme Being's creative powers might actually be observed experimentally by studying the activities of mysterious living subatomic agents emanated by a Cosmic Mind, that are directly responsible for the origin and evolution of viruses and biological life.

Gauthier¹⁷ proposed an experiment to test for the origin of viruses and living cells, whose success would implicate atoms as containers of the universal genetic code, contained in coded strings of DNA or RNA in atoms, and also implicate a Cosmic Mind for producing these genetic-code-containing atoms. Briefly, the experiment is based on the concept of microvita, proposed in 1986 by Sarkar¹⁸. According to him, microvita are subtle subatomic living entities emanated by the Cosmic Mind, that form fundamental physical particles and atoms. They are later released from radioactive atoms and develop in a suitable chemical environment into RNA- or DNA-carrying viruses, which may later combine to form living cells.

The proposed experiment will test whether viruses and living cells can be produced in sterile test tubes containing chemical precursors for viruses or protozoa, in the presence of a shielded radioactive material outside the test tubes, but not in the absence of the external shielded radioactive material. Gauthier¹⁹ elaborates on the experiment proposed in Gauthier¹⁷ and looks at its possible implications for the origin of life and the universe. A positive experimental outcome for the proposed experiment (the formation of viruses or protozoa in test tubes containing sterilized precursor chemicals) would indicate that the genetic code and codes for DNA or RNA (carried by microvita) are contained in radioactive atoms, and likely in all atoms. This would imply that DNA or RNA codes and the genetic code (carried by microvita) also existed in the Big Bang that preceded the formation of atoms. These genetic-code-carrying microvita could have only been

emanated from a Cosmic Mind that understands molecular biology as well as cosmology. These emanated microvita composed the initial Big Bang, and a short time later formed the fundamental physical particles and the atoms.

Therefore, the Cosmic Mind of God, which may be inferred from laboratory experimental results via genetically-coded information carried by microvita-composing atoms, may be needed to obtain significant progress in understanding the origin of protoplasmic life and also the speciation (formation of species) of living beings. Such appeals to a supernatural explanation for evolutionary processes will certainly be resisted by materialistic thinkers. They claim that God is not needed (and must not be introduced) to explain physical phenomena and scientific laws. For them, proposing God as an explanation for current gaps in scientific understanding (a “God of the gaps” explanation) is both metaphysically wrong and an actual barrier to the advancement of scientific (natural or materialistic) explanations for observed physical phenomena.

Let us assume, for the sake of argument, that a supernatural explanation gets a scientific foothold in explaining certain physical and biological phenomena that have been continually unexplained by conventional materialistic science, such as the origin of life or the evolution of species. This would not imply that dogma-based religions would then replace scientific rationality. Rather, it would mean that science would expand its scope to include supernatural explanations for certain scientific phenomena and regularities. Supernatural explanations would be accepted as integral to science, and not just “tacked on” to otherwise satisfactory materialistic explanations.

Supernatural explanations may become the best scientific explanation for knotty “origins” questions, where conventional materialistic science has continued to fail to provide satisfactory explanations, such as for the origin of the universe, the origin of energy, the origin of matter, the origin of life and the genetic code, the origin of species, the origin of individual minds and conscious experiences, and the origin of human languages. In the future, successful supernaturally-based science may show that materialistic laws and explanations were crude approximations to supernatural explanations that explain physical and mental reality on a deeper, more rational and more satisfactory level.

Transposons and Speciation

The composition and mode of action of transposons has become much better understood in the last 40 years. There are basically two main classes of transposons: 1) Class 1:

retrotransposons (called “copy and paste” transposons) that copy a strip of DNA and produce a corresponding strip of RNA that then goes to another part of the genome and gets copied back from RNA into DNA and is then inserted into the genome’s DNA, and 2) Class 2: DNA transposons, most of which (called “cut and paste” transposons) cut out and remove a strip of DNA from one place in an organism’s cellular DNA and insert it into another place in the cellular DNA. Class 1 retrotransposons (which are in the great majority in eukaryotic cells) can make thousands of copies of DNA segments in the genome and add these copies to multiple sites in the genome. They increase both the total size of the genome and the percentage of the genome that is composed of retrotransposon DNA. Class 2 DNA transposons keep the same total amount of DNA in a genome, but shift strips of DNA around from one site to another.

Transposons can affect the DNA processes that control the development and expression of the organism’s DNA. For example, the transposons in maize kernel genomes that McClintock studied systematically changed the colors of the kernels of maize on a maize cob. The actions of other transposons can result in various diseases of an organism due to the shuffling of DNA and production of extra DNA to different places in the genome in a way that blocks the correct functioning of the DNA. Other transposons can have an inhibiting or disinhibiting action on the expression of DNA, which would affect the timing and rate of development of different organ systems of an organism. The transposon-affected developing organism might appear different and act quite differently from the previous one. If the new organism could not reproduce with members of the species it came from but could reproduce with others like itself, then a new species would have been formed.

The effect of different stressors on organisms such as high temperature and lack of food on the activation and movement of transposons has been and is being studied. In general, transposons are highly activated by such stressors. This indicates that big changes in the natural environment during species extinction events and other major climate changes could be a big stimulus to the activation of transposons and the creation of new species that are better adapted to changing environmental conditions than a present species. McClintock ended her 1983 Nobel Prize address this way: “In the future, attention undoubtedly will be centered on the genome, with greater appreciation of its significance as a highly sensitive organ of the cell that monitors genomic activities and corrects common errors, senses unusual and unexpected events, and responds to them, often by restructuring the genome. We know about the components of genomes that could

be made available for such restructuring. We know nothing, however, about how the cell senses danger and instigates responses to it that often are truly remarkable.” McClintock²⁰ in 1984 proposed a hypothesis about the relation of stressors on cells to evolution. According to her hypothesis, transposons that jump from one location on a genome to another, create genetic mutations. These increase genetic variability that eventually leads to morphological alterations of species members. This leads some species members to adapt better than others to environmental changes. The better adaptation of these species members would lead to evolutionary changes in a species.

Wells and Feschott’s²¹ conclusion to their 2020 *Field Guide to Eukaryotic Transposable Elements* included a brief summary of the past 60 years of research on transposons or transposable elements (TEs) and their relations to genomic, and therefore to species, evolution:

“Despite their fundamental importance, however, the discovery of TEs did not immediately transform genome biology. The first six decades following McClintock’s initial breakthrough in maize were dominated by genetic and molecular characterization of a relatively small subset of active TEs and the myriad ways they cause mutant phenotypes in a few species, including model organisms, domesticated species and humans. Revolutionary advances in DNA sequencing since the early 2000’s triggered a major shift in TE research to ‘genome-wide’ studies where virtually all TEs residing within any genome can be identified, compared and interrogated for their regulatory activities. While it was quickly realized that most TEs in any given species are inactive relics of past invasions, such genome-wide studies revealed with increasing breadth how TEs have fueled genome evolution.”

The potential implications of the actions of transposons for the creation of a new species from members of an existing species are clear. The rapidity with which organisms’ genomes can be radically modified by the action of transposons, particularly under environmental stressors, strongly suggests that the production of new species of an organism by the action of transposons would be expected to occur quite rapidly, and much faster than in the neo-Darwinian adaptation of species through the mechanism of natural selection described in the Modern Synthesis, which was formed before the discovery of transposons.

We can confidently predict that with further research on transposons and their effects on cellular development mechanisms, transposons will relatively soon be implicated in the formation of new species.

Microvita, viruses and transposons in species evolution

The evolution of a new species from a current species, according to the microvita concept, requires that the current species' reproductive genome be enhanced and reorganized during reproduction in three steps: 1) if needed, the current genome acquires new DNA from pre-programmed microvita-produced viruses that encode any additional protein molecules needed by the new species for its revised structure and physiology, 2) if needed, the current genome acquires new non-protein-coding DNA from pre-programmed microvita-produced viruses containing developmental instructions for the new species that are not currently present in the current genome, and 3) using its own and any newly acquired transposons to shuffle the DNA in the current genome (including any added protein-coding DNA and development-instruction DNA) so that new species members may develop from the enhanced DNA-shuffled genome.

In the first two steps above about acquiring new DNA for new protein molecules and new developmental instructions, this new DNA can be provided to current species members' reproductive genomes in the same way that new DNA or RNA was provided during the origin of the first protozoic cells, as described by Gauthier¹⁷. It would be brought to the current species' genome by DNA- or RNA-carrying viruses that develop from pre-programmed DNA- or RNA-code-carrying microvita emitted by radioactive atoms during radioactive decay. If the above three steps are followed, a member of the new species will develop from the enhanced and reshuffled genome of the current species member during its reproductive process.

It may be possible that a new species can be produced from a current species (even without the need of externally supplied DNA) by a suitable reshuffling in the genome of a set of pre-programmed species-changing transposons that are activated during some dramatic climate changing event. How likely is it that these activated transposons (now detached from the current species genome and floating nearby) carrying the species-changing DNA will reach the correct locations in the current species' genome, required to produce the new species? Let us consider a simplified example of this.

Suppose that during a severe climate crisis, some members of a viable new bird species have been formed from a current bird species. Suppose that the formation of the new bird species has been traced to the activation of 100 transposons that moved their DNA to 100 new places in the reproductive genomes of members the original bird species. Suppose that the new species

members are found to have an ecological niche very well suited to the new species' characteristics, with their new niche being somewhat different from that of the original bird species. Let us also suppose that if one or more of the 100 species-changing transposons had settled at a wrong site in a current bird's reproductive genome, a new bird would have been born deformed and without a suitable niche to survive in. Finally, let us suppose that the placement of the 100 transposons in the genomes that produced the new bird species had to be exactly right to produce the viable new bird species in its suitable new ecological niche.

If the 100 transposons moved to new positions in the genome at random, the probability of any of the 100 transposons going to any of many other possible landing sites in the genome than where it did go would be extremely high, since any bird genome typically contains 1 to 1.8 billion DNA base pairs where the transposon could have landed. Therefore, the probability of all 100 transposons going at random to the "right" places in the genome to create the new bird species would be vanishingly small. Yet somehow all 100 transposons went to the "correct" places and a viable new bird species was produced from the original species. I propose that all 100 transposons were guided to their "correct" sites on the reproductive genome by the actions of microvita that were pre-programmed by the Cosmic Mind to produce the viable new species from the previous species. These pre-programmed microvita for producing the new bird species by correctly moving transposons on the current species' genome to their new sites, could have come with microvita-created retroviruses that brought the original transposons' DNA to the current bird species or its species' ancestors.

The role of microvita in the formation of viruses (which could then create living cells) and in the evolution of new species would then be somewhat similar. In the origin of viruses, according to the experimental proposal by Gauthier¹⁷, pre-programmed microvita assemble precursor chemicals such as nucleotides and amino acids into viable DNA- or RNA-carrying viruses that embody the universal genetic code and will carry out virus activities, including the formation of protozoic cells, when in a suitable chemical environment. In the origin of species, pre-programmed microvita carried by transposons move a set of transposons in a reproductive genome to specific new sites in the same genome in order for viable members of a new species to be produced when the affected organisms reproduce.

The Pre-planned Origin of Species

It is clear that some kind of pre-programming of transposon activities would be necessary to create a new viable species by the shifting of transposons in the genome of a species member from a set of initial transposon sites to a set of final transposon sites. Microvita could do this as active agents of a Cosmic Mind that has planned for the formation of new species. Sarkar²² gave an intriguing discourse called “The Great Exceptions” where new species are created as exceptions to otherwise non-evolving members of an earlier species. Here are the relevant quotes:

“Since the days of Australopithecine, a new kind of creature slowly evolved: the proto-ape or ape-man. At a certain stage in evolution, one of these creatures became an exception to the norm of the community, resulting in some evolving into chimpanzees, some into orangutans, some into gorillas, and some into human beings. All of these creatures are tailless. These diverging evolutionary branches occurred due to an exception somewhere along the path of evolution.

“Various fishes have evolved from the Coelacanth, the original ancestor of all fishes. One would think that, having all evolved from the same source, all fishes would be of the same appearance – but this is not the case. Due to many exceptions along the path of evolution, different species of fishes emerged. If such exceptions had not occurred, all fishes, and all primates, such as chimpanzees and gorillas, would have been of the same type.”

Here, the term “exception” corresponds to the formation of a new species or other classes of organism, such as fishes and primates. P.R. Sarkar indicates that species keep their same appearance, i.e. do not appear to evolve or change, unless the species rapidly produces a different species. This sounds very much like Eldridge and Gould’s⁹ punctuated equilibria.

The above passages in “The Great Exceptions” were spoken in 1979, before the concept of microvita was introduced in 1986, and after punctuated equilibria were introduced by Eldredge and Gould in 1972. Transposons would have existed in these ancient animals, likely brought by ancient retroviruses and deposited and left in other organisms’ DNA as part of the reproductive cycle of retroviruses. The mechanism of creation of a new species by microvita relocating transposons within the genomes of members of an existing species in a pre-planned way, would have been the same hundreds of millions of years ago as it is today. A new pre-planned species would emerge already fitting into its ecological niche, and would not have to rapidly adapt to a new niche by Darwinian natural selection, as described by Eldredge and Gould for species evolution by punctuated equilibria.

Formation of new species requires the approval of the Cosmic Mind

In another discourse, “Four Dimensions of Micropsychic Longings”, Sarkar²³ gave several ideas about how new species are formed, but only with the approval of “Macrocosmic Conation” i.e. the Cosmic Mind:

“In each and every physical and psychic structure there remain certain self-controlling faculties. In the case of this inborn instinct, or, say, psycho-physical longing, there are self-controlling faculties also. But these faculties cannot move against the characteristics of the vital force. When these controlling faculties go against the characteristics of the vital force, disintegration and dissociation start both within and without the framework. This is the wont of the individual structure. And in the case of collective structures, regarding these psycho-physical longings, if it is seen that the collective body of a particular nature of living being or expression does not like it, then the controlling faculty creates a sort of change and metamorphosis in the physical structure, and as a result, the nature of the longings also changes. That is, in the case of the individual structure, it is to be goaded by the controlling faculty only up to a certain range or certain stratum. Otherwise, the structure will start disintegration or dissociation both within and without. And in a collective body, the collective controlling faculty may create a sort of change in the physical structures if such a change is supported by Macrocosmic conation, otherwise not.”

This discourse was given on 30 May 1987, a few months after Sarkar¹⁸ first introduced microvita on 31 December 1986. The key sentence here relating to the origin of species is “And in the case of collective structures, regarding these psycho-physical longings, if it is seen that the collective body of a particular nature of living being or expression does not like it, then the controlling faculty creates a sort of change and metamorphosis in the physical structure, and as a result, the nature of the longings also changes.” This indicates that the collective longings of a group of members of one species can result in the formation of a new species, having different collective longings, but only if the change is supported by Macrocosmic conation, i.e. the Cosmic Mind.

This quotation does not mention microvita and does not indicate how the Macrocosmic conation actively gives its support to the formation of new species. But the following day in another major discourse, when referring to human beings at different stages of spiritual progress, Sarkar²⁴ said, “I already told you that human beings at the most can make efforts, and if Parama Puruśa (Supreme Consciousness) is pleased with their efforts, He will help them with positive

microvita; Parama Puruśa will get the work done with the help of positive microvita.” If the Supreme Consciousness, expressing through its Cosmic Mind, supports human efforts by providing positive microvita that get the work done, we can assume that the same will be true for the efforts of less developed species to evolve in a way that the Supreme Consciousness approves. The Cosmic Mind will apply microvita to the species members to bring about their needed physical and mental changes in a way that further evolves the species.

The changes produced by the application of microvita to some species members to form a new species do not necessarily happen overnight. Sarkar²⁵ gave an example of fish species becoming terrestrial: “There are certain fish which although aquatic have been trying for lakhs (hundred of thousands) of years to become terrestrial. There have been therefore certain changes in their physical structure. We call these fish, i.e anabas, catfish, etc., jiol fish. If they survive, they may become terrestrial in a few lakhs of years.” It is clear from this passage that these fish are being gradually transformed into a new species as a result of their continuous efforts for transformation, and not as a result of random mutations in their genes. This transformation process is happening in stages over a period of hundreds of thousands of years.

The evolution of individual minds and bodies, and reincarnation

In P.R. Sarkar’s philosophy, each living being and each living cell has a mind. A protozoic mind is associated with a protozoic body when a living protozoic cell is formed. In hierarchically-structured multicellular or metazoic bodies there are metazoic minds of different organs as well as protozoic minds of the individual cells, and also a single metazoic mind for the whole living body. The combination of all these protozoic and metazoic minds is the collective mind of the organism, whether human being or less developed living being. A human mind is therefore a collective mind.

According to Sarkar²⁶, individual minds first emerge from the collective activity of microvita: “So many microcosms, so many microvita, are there. They have not got clear “I” feeling. Their existence is more of physical nature than of psychic nature. The collective body of microvita is another name of carbon atom. Carbon atom is another name of so many microvita with so many specialities, with so many characteristics. The collective body of microvita is the collective “I” feeling maintaining a relationship with the physical body. There is no such relationship in the case of a dead physical structure. The relationship is inert.” “The collective

body of microvita is carbon atom, and when carbon atoms are in cohesion with other carbonic atoms, “I” feeling is created. As coverage of these collective bodies there is endoplasm.”

How does each living entity develop its mind and body, according to P. R. Sarkar? Before creating the universe, the Cosmic Mind apparently decided to create living beings systematically over time in hierarchical system of distinct species and higher categories of life, like kingdom, class, phylum, order, family, as higher orders above species, as an efficient way for life in the universe to evolve and develop, from protozoa to advanced human beings. The distinctive human characteristic or dharma, compared to less evolved living beings, is manava dharma (human dharma) or Bhagavata dharma (Divine dharma) -- the desire for infinite happiness and peace, which can only be fully satisfied by merging the human mind and individual self with the infinite Supreme Consciousness. During their lives on the Earth (and elsewhere in the universe), the various organisms live, die and usually take rebirth (through reincarnation of the developing associated minds and souls with appropriate new bodies). The populations of the various species change over time until each species finally becomes extinct, after perhaps having given rise to one or more other species. Each individual mind and soul develops through sequential embodiments (incarnations) in many protozoic, plant and animal bodies and finally to the stage of human beings. The fossil record shows the history of the appearances and extinctions of many species that lived many thousands or millions of years ago. The minds and bodies of all living beings change and evolve over time. According to Sarkar²⁷, human beings have fifty main mental propensities (urges or vrttis), and this number may increase in the future, while other species have fewer propensities. Here he said, “Humans evolved from animals and now have many more vrttis than animals.”

The mind or mental plate of an organism has a size depending on the development of its various instincts and other mental propensities. The minds of organisms develop and expand according to the amounts of physical and mental clash they experience in interacting with other organisms and their environment, as well as due to the attractive force of the Supreme Consciousness on each organism. With the development of individual minds, the feeling of individual existence and knowledge of one’s individual self gradually develops in each individual.

What is the cause in human beings of the conscious knowledge of one’s existence, which is not the same as the feeling “I exist”, or existential I feeling? In P.R. Sarkar’s²⁸ yoga philosophy, there is an infinite Cosmic Mind that is derived from infinite Cosmic Consciousness. Each living

entity in the universe has a mind that also exists within the Cosmic Mind. Each individual mind has some degree of feeling of its own existence, its own “I” feeling. The Cosmic Consciousness is a Cosmic Self that has the knowledge of its own Cosmic existence as well as full knowledge about everything in its Creation. This one Cosmic Self is reflected on all the individual minds (as well as all inanimate objects) in the Creation. Each reflection of the Cosmic Self on a mind is the individual self or soul of that mind.

When the individual mind (with its individual “I feeling”) is very undeveloped, the reflected self is very indistinct and does not clearly reflect the one Cosmic Self. That individual self is the knower of its individual mind’s thoughts, feelings and memories, including its feeling of existence. An undeveloped organism’s mind does not clearly experience its self, and its feeling of its own existence is also very indistinct. But the individual self knows everything of its associated individual mind, and transmits its knowledge of the individual mind to the Cosmic Self. Therefore, the Cosmic Self knows everything about each individual mind from the mind’s self, and also knows about the collectivity of its Creation directly. The Cosmic Self’s direct relationship with its whole Creation is called *Prota Yoga*, while the Cosmic Self’s personal relationship with each individual mind (which has its individual self) is called *Ota Yoga*.

With this background, P.R. Sarkar’s description of the evolution of species from the simplest protozoa to human beings is explained succinctly in Sarkar²⁹, in a way that is very different from current evolutionary theory that is based on naturalism and materialism, in which mind and consciousness are continuing enigmas.

“Development of the organism is a phenomenon of the progressive manifestation of dormant consciousness. The first and primary streak of awakened consciousness finds its way through the crudest portion of the mind-entity. With simple cellular structures, the mind is confined to a few expressed elements of the body, its pleasure and protection. Whatever propensity exists is only for protecting the entity against environmental pressures and for increasing the number of similar creatures. That is why unicellular organisms are equipped with intense sexual power. Both male and female capacities are combined in the one body.

The plant world that precedes the cellular animal organisms also has the privilege of the manifestation of mind. In the cellular animal organisms, however, the expressions of propensities are very distinct. Though the initial tendencies remain confined to the preservation of material existence, with a gradual instinctive clash in progress, new propensities find their way, making the manifestation

of the dormant consciousness still more distinct as the older structures are evolved into the forms of new species.

The organs themselves are shaped and their relative strength is determined according to the needs of the mind for preserving the body against environmental conditions. Thus, the physical structure goes on developing and getting complex with the development of the mind. The dimension of the psychic plate increases with the increase in the number of propensities.

The power of self-expression remains confined to the instinctive desires of self-preservation and procreation in the most underdeveloped organisms. But with the widening of the psychic horizon, this power goes on increasing and finally finds the highest expression in the form of human beings. Lower organisms are slaves to matter – they can make adjustments in the environment but cannot mold it. According to the degree of freedom, their existential consciousness has formed the body-feeling; their power of doership increases; and accordingly, they become competent to turn the environment to their advantage. An ape can throw a rock or a branch of a tree in self-preservation, but a serpent has to rely on its poisonous gland. Nature has provided the lower organisms with sufficient weapons of protection in their own bodies.

With the increase in psychic power, fierce physical potentialities go on waning, and at the stage of human beings the power of protection lies more with the mind than with the body. Though the acquired tendencies of the animal play no mean role in the life of human beings, the developed ego-consciousness or intellectual faculty finds adequate expression in their behavior. It is they alone who have the power to introspect within the real nature of their existence and find its final abode, or generative place. Animal consciousness identifies body-consciousness with the existential consciousness, but human consciousness tries to investigate on the synthetic plane.

Though the potentiality of the highest consciousness is always latent even in the lowest organisms, its coruscation becomes clearer with the increased circumference of the mind. This presupposes the adequate and consummate unfolding or awakening of the working and intuitive intellects. It is on the pure existential intellect that the reflection of the Cognitive Entity or Knower-Progenitor finds clearest expression. As the lower rungs of psychic consciousness are merged in the intuitive intellect through the sublimation of propensities, the feeling of body and environment merges in the surging flows of Cognitive Force and the unit loses its individuality for the time. If the cerebral nerves stop functioning and all the psychic momenta (karmic reactions) of the past are exhausted, the unit existential intellect loses its entity permanently in the ocean of blissful Consciousness. This is the end of the journey of the microcosm.”

At every stage of the creation and development of living organisms, from the protozoic stage, through the origin and evolution of species of plants and animals to human beings, microvita act as intelligent evolutionary agents of the Cosmic Mind, as summarized in Gauthier³⁰. If the goal of the Cosmic Consciousness is to create life and human beings whose minds expand and merge back into Cosmic Consciousness, one might ask why the Cosmic Mind created so many species in a hierarchical order over such an extended time period of time in order to accomplish this. It may have to be accepted or realized that the Cosmic Consciousness has a Cosmic Personality that likes to do things in a very big way, and also in very small ways, that please Itself as well as giving a sense of expansiveness and drama to the cosmos and its living beings.

How science and society would be affected by the discovery of microvita

If the experiment proposed by Gauthier¹⁷ to test for the existence of DNA or RNA-code-containing microvita that compose atoms, comes out positive, this will implicate a Cosmic Mind as the creator of these microvita. Emanated from the Cosmic Mind, these microvita existed from the beginning of the Big Bang and composed atoms later in the Big Bang. The Cosmic Mind does not exist in a vacuum, so to speak. Rather, all vacuums, and all finite entities, exist within the Cosmic Mind. According to P.R. Sarkar's philosophy, the infinite Cosmic Mind is created from the infinite Cosmic Consciousness, or God. That Cosmic Consciousness or Supreme Self has a close personal relationship with every entity in its Creation. Through its close relationship with each individual entity, Cosmic Consciousness makes sure that each entity evolves and develops its mind over time, and over many lifetimes, to become a developed human being who then finally merges back into Cosmic Consciousness.

If a Cosmic Mind becomes a scientifically necessary entity for explaining the origin of life and species by means of microvita, viruses, and transposons, then this will mean that the philosophy of science will have to be redefined to include the Cosmic Mind as an explanatory entity, at least in the origin of the universe, life and species. It also means that materialistic science, which has come to dominate science from the 1800's up to the present, will have to give way to a science that does not have to be satisfied with answers and theories, often unsatisfactory, that are based purely on a materialistic approach. Scientists will need to approach understanding mind and consciousness in a very different way than they do today. Future scientists will want to take up

physico-psycho-spiritual practices to develop their intellects and scientific intuition in order to do scientific research on microvita to solve many of the problems of society in a nice way.

Evolutionary theory and the Modern Synthesis, which have held on to natural selection exclusively as the basis for the origin of species by following only the materialistic laws of physics and chemistry, will have to be fundamentally revised if microvita are implicated in the origin of species. Science would have to include the role of Supreme Consciousness and the Cosmic Mind acting through microvita in the origin of life and species, as well as in the creation of individual minds. Individual souls as reflections of Cosmic Consciousness on individual minds. Also, the reincarnation of souls and minds into different physical bodies over time, would have to be accepted as part of a consistent scientific and philosophical system. This would mean the end of the materialistic domination of science and much of society. It would raise the question of humanity having a universal ethical system and a universal spiritual ideology based on dogma-free rationality and Supreme Consciousness as fundamental to the well-being and growth of human society.

Future empirical scientific investigations and associated theoretical research may show how the Cosmic Mind utilizes microvita to form the universe, life, species and minds. If this is the case, then it also becomes a scientific question to ask why the Earth is, and presumably many other planets in the universe are, filled with so many different hierarchically organized species, each with their minds, bodies and habitats in which they live and strive to continue living. According to P. R. Sarkar, each living being loves its own life as much as human beings love their own lives. This truth will have to be taken into account in developing ecological policies that support the good and happiness of all living beings.

Conclusion

The idea that the magnificent diversity and complexity of the living world was produced by natural selection (based only on the laws of physics and chemistry) acting on variations in living beings, which gives small but highly significant advantages to some living beings over others in a continuing struggle for existence (also known as the survival of fittest), is one of the most powerful, and one of the most detrimental, scientific as well as social ideas in human history. When cosmic and biological evolution are both considered as purely the playing out of physical laws of matter and energy, this view has serious negative implications not only for science (by limiting the scope

of scientific explanations to only materialistic explanations) but for our human society, since human beings would also ultimately be totally controlled by the same mindless laws of matter and energy. An opposing idea, that the evolution of the universe and the living world are pre-planned and controlled by an infinite, all-powerful, all-knowing and fully benevolent supernatural entity that allows human beings free will, responsibility and ultimate freedom, has been in decline during the past two centuries. Due to the lack of experimental scientific support for the existence of such a Divine being in an increasingly technological and materialistic world, the belief of human beings in such a Divine being may be on the verge of extinction, if the present scientific and social trends continue.

But a recently proposed scientific experiment based on Prabhat Ranjan Sarkar's idea of Cosmic-Mind-emanated microvita producing life and minds in the universe, may be about to turn around this galloping and perhaps fatal trend towards a wholly materialistic and "might makes right" society. Subatomic living entities called microvita, emanated by a Cosmic Mind, may soon be implicated in both the origin of life in the universe and the evolution of life's diversity and the mind's upward development towards higher Consciousness. New scientific results may lead to a new science of life and the universe. An infinite Consciousness may have created a Cosmic Mind that, taking the help of microvita, evolved the universe and all living beings with all their varieties, with a goal and a plan for every entity in creation to evolve, expand its mind, and finally merge into the Supreme Consciousness and Supreme Bliss from which it arose.

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