

# *The Unity of the Grand Continuum*

## *Non-life, Life and Consciousness as a Single Living Reality: Further Reflections on the Gaia Hypothesis*

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### **Introduction**

James Lovelock's statement of the Gaia hypothesis has dramatically challenged some of our common assumptions about the planet we inhabit and our interactions with it. According to the hypothesis as it now generally prevails, the earth's biosphere, that thin and fragile membrane, sandwiched between the planet's seething molten interior and the vacuum of outer space which sustains life in all forms known to us -- flora and fauna, whales and weasels, bacteria and bison, mice and men, -- constitute a single inter-connected and inter-dependent system with its own feedback loops and cybernetic self-regulation, a system which itself shares in the properties characteristic of life as we know it.

I want to pose here the question: should we go beyond the Gaia hypothesis to see whether the whole universe itself shares some of the characteristics of what is attributed to the biosphere as a feed-back looped self-regulating organism?

In this context we will first note the fact that if the biosphere is a living organism, it comprehends in itself so many units which are in themselves regarded as non-living-- soil and clouds, sun and rain, mountains and rivers. The clear conclusion is that life could never subsist without non-life.

Next we should take into account the fact that life itself has given rise to consciousness: specifically human consciousness. It is human consciousness (mind, will, and feeling) that has created the problems; a change in that human consciousness seems to be what the perceptive ones are striving for. Science itself is not capable of effecting that change. We need the wider human community to make the effort.

### **A few questions on life, and theories of origin**

At this point a few philosophical rather than strictly "scientific" questions could be raised. What is life? What is its specific characteristic, such that all life has it and without it something would not be life?

The abstract noun "life" is more problematic than the adjective "living" because "life" in the abstract does not exist; we know only "living beings", and we make an abstraction out of it in our thought called "life".

So let us put the question anew: What is a living being as distinct from a non-living being? Or even more correctly, how is living matter to be distinguished from non-living matter? For we know life only as a property of matter; at least within the scientific community there has been no observation of non-material living phenomena.

Self-organizing capacity (negative entropy?) and homeostasis (the capacity to keep internal conditions constant despite changes in the external environment) are often advanced as characteristics of living matter, as opposed to non-living matter characterized by entropy (internal disintegration according to the Second Law of Thermodynamics) and by no resistance (except inertia) and no internal adjustment to external circumstances.

These definitions actually break down when carefully examined in detail. A virus, without a culture in which to feed and multiply, has no homeostasis or self-organizing capacity in itself. You may, of course, want to argue that a virus is not living matter, but somewhere in between the living and the non-living. How about an unfertilized ovum? Is it living matter? Abortionists would have their own answers to that question, but that does not solve the philosophical problem of the boundary between the living and the non-living. The unfertilized ovum is potentially alive -- for when fertilized and lodged on the right kind of womb wall with facility to draw nourishment from the amniotic fluid, it can become life.

With that kind of life and potential life in mind, it is good to ask the question: Was the "Big Bang" alive when it started? If the unfertilized ovum is alive because of its potential, certainly the Big Bang was alive, for all life we know was potentially in it when it started. Of course my commitment to either the Big Bang theory or the theory of Continuous Creation is far from enthusiastic. I am not clever enough to answer questions like: "What was it that banged in the first place?" or "What was there before the Bang?"

Nor do I presume to understand the theory of continuous Creation based on the hypothesis that matter is being continuously created (out of nothing) in the inter-stellar spaces of the universe. I would again raise the question: If matter is ever created out of nothing, what force or energy does so?"

Let me state quite clearly that my difficulties with the two prevailing theories of the origin of the universe do not persuade me to espouse the other third position, namely Creationism, which I do not regard either as scientific or as based on justified biblical interpretation. Creationism cannot stand as a scientific theory to explain the origin of the species or the evolution of the planet. It helps only to distract from the urgent need to re-examine the prevailing scientific theory of Evolution which shows many gaps and difficulties.

To return to the Big Bang, whether one is an ardent believer in it or not. The unfertilized ovum requires fertilization by an external agent and environmental conditions external to it in order to grow into life. The Big Bang obviously had all the conditions for life and consciousness packed into it from the beginning. It even created its own time and space. Of course, I do not know what time and space are, independent of human conception; they now look to me more like modalities built into human reason than into the universe itself. Let us leave aside that question to a future planetary dialogue, and stick to the fact that the universe, understood from our perspective as a time-space process and as a single whole, carries within it the potentiality for life in all its forms and of consciousness.

If that is so, the universe has more right to be called living and life-creating than an unfertilized or even fertilized ovum. The universe-- not just the biosphere -- is living and life-creating. And the universe is a dynamic continuum of non-life, life and consciousness--the three entities having relations of interdependence.

### **A Critical View of Gaia Hypothesis**

Let us modestly restate the Gaia hypothesis as it now generally prevails: The earth's biosphere, that thin and fragile membrane, sandwiched between the planet's seething molten interior and the vacuum of outer space which sustains life in all forms known to us -- flora and fauna, whales and weasels, bacteria and bison, mice and men, -- constitute a single inter-connected and inter-dependent system with its own feedback loops and cybernetic self-regulation, a system which itself shares in the properties characteristic of life as we know it.

So stated, the hypothesis seems impeccable. Nevertheless it is defective and misleading. In the first place, we make no mention of the non-organic components in the biosphere -- cloud and soil, mountain and river, ocean and wind, rain and snow, heat and cold. If we include all these in the biosphere as we must, can we exclude the Sun and the whole solar system, the galaxies which hold the Sun in place, and in fact the whole universe? If the earth did not rotate around its axis and make its orbit around the Sun at the present rate and pace, would life be sustained? Evolution did not start with the amoeba. Aeons of astral, solar and terrestrial convulsions form part of the history of evolution.

The biosphere may be fragile, but it is not paper-thin; nor is it sandwiched between the vacuum

of outer space (only 100 miles away) and the molten centre of the planet. Both those layers are part of the biosphere, not slices of bread on both sides of the meat. The biosphere is centrally dependent on the sun, that hydrogen furnace which moves around in its own galactic orbit and carries the whole planetary system with it.

And why should we not include the known forces of the universe -- gravitational, thermal, electro-magnetic, strong and weak -- in the biosphere? Would it have held together without these forces? And of all things, why this new terrocentrism which replaces anthropocentrism? Why take the earth in isolation and talk about the earth as a living being? Is it because we are as of now capable of doing damage only to the earth and other planets, while the sun and the other stars are beyond our present reach?

I see no justification for images like "thin membrane" and "spider's web" for the biosphere. It is no such thing, and to think with such models is positively perilous. The biosphere is not an earth-confined system, though topologically speaking we know only of life on earth; at least our present science tells us of no other life.

But even such life as we know here depends on extra-terrestrial realities like the sun and the galaxies in space. It is all right for us to speak of "planet management", since that is all that we can manage. And planet management is more than mere environmental management; it includes the creation of societies of justice and peace -- facing not just environmental issues, but political and economic issues as well: managing how we work to produce and how we organize socially our labor and our living together.

Planet management commends itself to us on other grounds as well. All three issues facing us-- environment, justice and peace-- cannot be managed nationally alone. We have to step beyond inherited patterns of national consciousness towards global consciousness of our unity as a single humanity and our need to face our problems from a global perspective. The concept of "planet management" should help us at that point, and planetary thinking must replace national loyalties and regional parochialisms.

But this concept has a negative side as well -- in fact it puts too much emphasis on humanity as a manager. Anthropocentrism in a new form slips into our global consciousness. The concept of responsible management or stewardship of the earth makes some of us terribly uneasy for another reason. We, of the two-third world, know how that global management generally works out. Those who have the tools and the skills of management will tell the rest of us what to do. That "management" of the world is what the white man and his civilization have been up to for a few centuries now. We have seen how the World Bank and the International Monetary Fund have sought to manage global credit and financing. The "managed" do receive some benefits, but at a very high price for the welfare of the people. We see how the white man manages South Africa and whose interests he secures. 'Planet management' frightens us, so long as the power equation on the planet remains what it is. Behind the concept of "stewardship" which some environmentalists seek to promote we detect the same anthropocentric "managerism" which scared us before.

## **Going beyond the hypothesis**

Perhaps we should move in with Fred Hoyle's "Intelligent Universe" concept. At least it does not smack of terrocentrism or anthropocentrism. If we see the universe as a dynamic process covering billions of years in which new forms of life are constantly coming into being and going out of existence, we can imagine the universe as intelligent and purposive -- like so many other living beings. To attribute the emergence of these new forms of life in the universe strictly to randomness and chance would be less than scientific, because we do not know of any other instance in which over such a long period of time chance always takes the right road at every cross-road. The evolutionary process has been at many such cross-roads in its long history, and if another road than the one taken had been followed, humanity and the human consciousness would hardly have emerged. I do not know my biology well, but that is what my friend George Wald, the Nobel Prize winner in biology, tells me. The evolutionary process had from the beginning "in mind" the creation of the human mind, though it took a long time and traversed a circuitous path to achieve its purpose.

There we come to an important philosophical issue -- the continuum of matter-energy, life and consciousness as a single dynamic whole. Modern science as it has developed in the last few centuries makes a dualistic approach -- the knowing human mind as subject and the known universe as object. Modern western philosophy uses the same subject-object dualism, human reason or the inner world of human consciousness seeking to comprehend or internalize the "objective" world "outside" without residuum, in order to subdue, dominate and manipulate that universe to serve human purposes.

While the dualistic approach has indeed yielded impressively dramatic results, the fundamental problem remains unresolved, namely the place of humanity in the universe. Neither modern science nor modern western philosophy can by itself provide us with even tentative answers. It seems to me that the most important task of the emerging planetary consciousness is to seek tentative answers to the questions about the meaning and purpose of the universe as a single dynamic process and of humanity as an integral but specific aspect of that process.

## **The Agenda of a Planetary Dialogue**

For this we need a new approach. From my perspective that new approach can emerge only from a planetary dialogue among five sets of main partners:

- natural and social scientists and theoreticians of science;
- philosophers from the different philosophical traditions of the world, including Asian philosophies, Marxism and other secular ideologies;
- articulate spokesmen of the poor, of women, and of the exploited, the oppressed and the marginalized of the world;

- fresh interpreters of the various religious traditions of the world -- both world religions and primal religions like those of the Amerindians and the aborigines of all continents, and
- historians, literary writers, artists, poets, journalists, educators and communicators of the world who have shown concern about meaning and purpose.

Such a dialogue cannot overlook the three central questions -- a sustainable and life-supporting biosphere, just societies and justice in and among nations, and peace in the world with promotion of human dignity, freedom and opportunities for creativity, for all and everywhere. All these require simultaneous global and local endeavors. But it should go beyond to some more fundamental questions.

I would propose three points of special concern to be included in the agenda of this planetary dialogue:

### **I. The Role of European (or Western) civilization in making the World what it is today.**

We will need to look at European civilization from its Greco-Roman foundations throughout known history beginning at least with the Macedonian conquests of Asia and Africa in the 4th century BC. We will need to look at both sides of this civilization -- as "adventure and expansion" and as a unifier of the world. It is a story of adventurous expansion through trade and piracy, plunder and repression, discovery and annexation, colonialism and imperialism, war and racism on the one hand, and the spreading of institutions of health and education, government and industry, science and technology, humanism and liberalism on the other. One has to go to the roots of (a) the medieval Christendom of Charlemagne and the Popes, (b) the European Renaissance, (c) the European Reformation and (d) the European Enlightenment, for these are the sources for the values that still to some extent move world civilization today. I have made my own humble contribution to this study in my last book *Enlightenment-- East and West* (Institute of Advanced Study, Shimla, New Delhi, India, 1989).

In examining European civilization as a world-transforming force, we will need to look at both the positive and the negative aspects of the two most powerful institutions that this civilization has created: (a) modern science\* and the technology based on it, and (b) the urban-industrial civilization that science/technology has created. These positive and negative aspects of science/technology and urban industrial civilization can be examined only with the help of those who can transcend the accepted values of the two sets of institutions and can distance themselves from both after having worked with both. I believe that until these two sets of institutions are radically reconceived, there can be no way found for humanity living together in justice and freedom, dignity and creativity, peace and joy.

Within this discussion there is a third set of institutions and values that need to be clarified -- those related to political economy or how human beings live together and work together. The prevailing institutions and values in political economy have also been created by the European

Enlightenment. Institutions like the electoral-democratic process, the state and government, capital, management and labor, the use of energy and resources, control of population growth and settlement, and so on will need to find flexible new regulatory norms related to overall human purpose.

The concept of justice and the meaning of peace are still very unclear. John Rawls' book, *The Concept of Justice*, has generated a two-decade debate which has helped expose the flimsy philosophical foundations of the concept of justice, again traceable to the European Enlightenment of the 18th and 19th centuries. Both Marxism in its various forms and western liberalism in its multiple forms are based on philosophical foundations which are, to put it mildly, quite shaky. In examining these philosophical foundations, we will find the need to affirm some common values like the unity of humanity, the dignity of all human beings, the commonality of our earth-habitat and so on. We may need to come to an agreement on these common values, while holding on to varying philosophical justifications for their validity.

European civilization is no doubt the most potent force today, both uniting and recreating the world, and at the same time creating so much of injustice, war, and disruption of the biosphere. We should be able in the planetary dialogue, not only to appreciate the positive values and question the negative ones, but also to look at the whole historic process of the development of European civilization and the values and forces underlying that development. This should include a reassessment of the three sets of institutions of science/technology, urban-industrial civilization and political economy; it should also go deeper into the underlying assumptions about humanity's understanding of its own role vis-a-vis the universe, as well as in relation to the under-girding reality on which all existence is contingent.

## **II. The Integrity of the Created-Creative Order of the Universe**

This involves fundamental reflection on the pluralistic unity of the universe of which we are a significant part. We cannot separate life from non-life, for life as we know it has a material base and is dependent on a material environment for its sustenance.

Nor can we bifurcate reality into two compartments, consciousness and universe as two separate entities. Matter-energy provides the basis for life as we know it and life gives the basis for consciousness in our experience. The three form a basic continuum. It is the failure to perceive this basic continuity that leads to the pernicious dualisms of subject-object, knower-known, consciousness world. Our stance as knowers, manipulators and managers of an external world leads us to many of the problems we encounter today. Scientific knowledge is not knowledge of a world outside of us, but of the world which sustains and supports us and of which we are an integral part. The world of our knowledge, as the Buddhists would say, is something which arises under the conditions of our relatedness to it. Our bodies with our senses and our consciousness, standing inside the world, experience it in a particular way. We should not absolutize that experience and knowledge arising under these conditions as somehow ultimate knowledge.

Our bodies, our senses, our reason and our language capacity make scientific knowledge possible. But we should not be under the illusion that this knowledge that we have of the world is knowledge of ultimate reality. Scientific knowledge is operationally reliable knowledge, valuable

for finding our way in this universe, under the conditions of bodily, spatio-temporal existence.

But our senses, our analytic reasoning and our language do not have access to reality in its totality. We know only one dimension of the whole -- that which is open to our senses. But we also know that our senses cannot sense everything. Our eyes and our ears can catch only a fragment of the range of what can be seen or heard. We do not even see all that a cat or an owl can see. Nor can we be sure that the world as a human being sees it is exactly identical with the world seen by a spider or a bee. A dog can hear what we do not hear. Every sense of ours is limited to a small part of the possible range of sense-objects.

Let me recapitulate. The universe is a continuum: matter/energy, life, consciousness. We are part of that continuum and cannot stand outside it to grasp it "objectively" or wholly. Our knowing itself is an event within that continuum; our bodies with their matter/energy structures, senses, reason, time-space modality, and language stand within that totality and not outside it. Our rational or scientific knowledge of the universe is operationally helpful but does not give access to the totality of reality or to its meaning and significance. Once we realize that, we will not be tempted to absolutize rational-scientific knowledge or to give undue credence to it.

The European Enlightenment civilization is one that falls prey to that temptation. Instead of being aware of the integral unity of the created order with ourselves in it, we make the mistake of bifurcating that order into subject and object, consciousness and world, knower and known, manager and managed. We pride ourselves about our knowing and manipulating capacities (science and technologies) and allow ourselves the delusion that we can know and manipulate the whole of reality.

We are vaguely aware that our concepts are fabrications of our minds and senses interacting with one dimension of reality. But most of the time we act as if conceptual knowledge is the only knowledge we are capable of. The European Enlightenment civilization, by exalting critical rationality as the best tool we have, has over-emphasized that rationality and numbed our other capacities -- for artistic-poetic perception, for ritual and symbol, for dance and liturgy, as ways of expressing our belonging to the sum-total of reality, to the continuum of matter-energy, life and consciousness.

Our true relationship within this continuum can only in part be expressed through concepts, rationality and language. This is indeed an important agenda item for the multifaceted global dialogue that we so desperately need and for which so few of us are adequately equipped. We need to move from national parochialism to a global consciousness, but we should also move from our global parochialism to a more universal awareness. It is a living universe and we are significant citizens of that universe.

### **III. And -- at the beginning, at the foundation, and at the end -- God**

I have intentionally sought not to mention God in connection with the totality of reality and its unity. The word 'God' has been so misused in our traditions that it is bound to be misunderstood. God is only a word in the English language, corresponding to a concept formed by the mind of human beings. But the God-concept is not formed as a result of sense-impressions we have

received. We get this concept from tradition and inference rather than sense-experience.

There were several such God-concepts in vogue in the West when modern science developed so that science started with some form of deism, i.e. a God conceived to be necessary to account for the authorship of the "natural laws" which the scientist was studying. Later this concept of God as author of natural laws was seen to make no difference in the actual working out of scientific laws, and was abandoned as an "unnecessary hypothesis" : reason and experimental testing were considered capable of yielding all truth.

Thus secularism arose in a new form -- the beliefs that the world that is open to our senses is the only world that exists, and that this world can be fully explained within itself without reference to any transcendent reality creating it or sustaining it.

Secularism and modern science reinforced each other. Finally in science itself we have come to the opposite conclusion of secularism, but are unable to state it scientifically. We know today in science that we do not perceive the whole of reality, that what we perceive is colored by the structures and limits of our mind and senses and our measuring instruments, and that there may be a number of dimensions to reality to which modern science now has little or no access.

This does not mean that we can reinstate the old abandoned (not by all) medieval or post-medieval European Christian God back into the centre of modern science. The European medieval and post-medieval concepts of God are today still philosophically unsustainable.

We need to rediscover the fundamental dimension of all reality of which we have so little conceptual grasp.\* Buddhists have managed to do without the concept of God or an equivalent. Generally speaking the West Asian religions of Judaism, Christianity, and Islam have sought to affirm a transcendent God as the source and ground of all reality. The mystics of the world would speak of a fundamental experience of total unity, in which the experiencer himself/herself is caught up into the whole, in such a way that the knower-known dichotomy is also transcended. But, then it may not be so easy to integrate mystical experience with the scientific method and body of knowledge.

But in any case we have to re-examine the fundamentally unphilosophical, unscientific, unreasonable assumption of the secularist view -- that this world open to our senses is the only world that exists, and that meaning and significance for life have to be sought and found without reference to any transcendent reality or transcendent world. This assumption is not always stated in those terms by any scientist. The question today is when the whole corpus of science prefers to ignore questions about the origin of all that exists, of how it is sustained in existence and whether the whole has a purpose or meaning, it also ignores an important aspect of all truth; therefore the knowledge that the scientific enterprise yields could very well be a fundamentally distorted truth even where it is operationally successful.

## **Conclusion**

The hypothesis that the earth or its biosphere is a feed-back looped self-regulating living organism leads logically to the conclusion that the universe, beginning with the Big Bang or

whatever it was at the beginning of the presumed process of evolutionary development of the universe, with inorganic matter, life and consciousness, is itself a single united continuum sustained by a living, conscious energy that pervades it throughout, sustains it and guides it to its own common destiny.

I believe that the force that set the created order in motion and sustains it today is the energy-life-consciousness that we have become alienated from. We suffer today because of that alienation, in our being and in our consciousness. That alienation pervades our science/technology structures, our urban-industrial civilization, and our institutions of political economy and cultural creativity. We need to recognize this alienation and start building non-alienating structures.

That demands that we go beyond the Gaia hypothesis and the planet management concepts -- to a revolutionary and creative consciousness of that universal reality which carries us, to which we are responsible, and from which we have been alienated.

### **Notes**

\* I have tried to make a modest contribution to the ongoing debate about science and society in my *Science for Sane Societies*, Paragon, N.Y. 1987.

\* For a fuller discussion of the intricate unity and distinctions among the three realities: God, Humanity and the universe from an Eastern/Oriental Orthodox Christian perspective, see my *Cosmic Man*, New York, Paragon, 1988, and my *The Human Presence*, New York, Amity House, 1987.