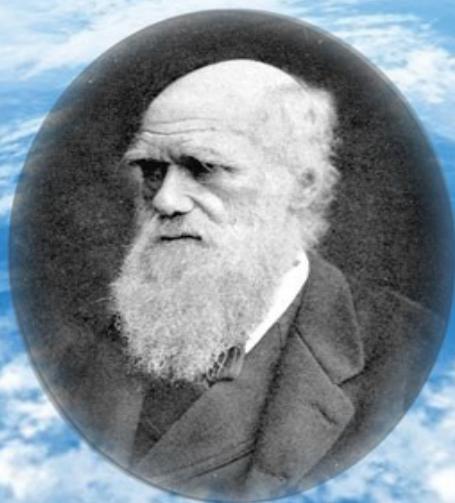




Rod Hemsell

The Philosophy of Evolution



THE PHILOSOPHY OF EVOLUTION

Part 1

DARWIN AND SRI AUROBINDO

Part 2

MIND AND SUPERMIND

BY ROD HEMSELL

UNIVERSITY OF HUMAN UNITY
LECTURE SERIES 1 AND 2 – 2008, 2009
AUROVILLE, INDIA

This e-book has been prepared by **Auro e-Books**, an international website dedicated to e-books on Well-Being and Spirituality.



Discover more e-books and other activities on our website:
www.auro-ebooks.com

© Rod Hemsell
Ebook Edition 2014

Book Cover Art Courtesy: Krishna

Materials originally published by University of Human Unity
Website: <http://universityofhumanunity.org>

Abstract

Part 1

DARWIN AND SRI AUROBINDO

The aim of this course is to present a coherent introduction to the subject of evolution from both the scientific and the philosophical points of view, primarily in order to stimulate philosophical thinking about the subject. Through philosophical thinking a greater understanding and appreciation of the phenomenon of evolution, and of "nature" in general, including human nature, can be achieved. The texts that will be used in the course are taken from a variety of original writers on the subject of evolution, presented in chronological order to illustrate the development of evolutionary thought in general. Some of the authors referred to are Spencer, Darwin, Huxley, Haeckel, Bergson, Whitehead, Teilhard de Chardin, Mayr, Lorenz, Capra, Sheldrake, Dawkins, Dennett, and Sri Aurobindo. Although it is not the primary intention of this course to present the philosophy of Sri Aurobindo in a comprehensive way, his perspectives provide a general context and background for this study. These lectures are followed by a second series titled 'Mind and Supermind'. Complete audio files of both series are available on the website: www.universityofhumanunity.org. This text is a transcription of the audio files of Series 1, minimally edited for readability and clarity, while remaining closely keyed to the rather informal and loosely structured style of the spoken lectures.

Part 2

MIND AND SUPERMIND

Following the first series of lectures in 2008, 'Darwin and Sri Aurobindo', this series of lectures attempts to define mind, the limitations of mind, and the rationale for a theory of evolution beyond mind, based primarily on the philosophy of Sri Aurobindo. While in the first series a background in the most important biological thinkers who have contributed to the philosophy of evolution was presented, a background is presented here in the thought of several important philosophical thinkers, such as Aristotle in the classical period, Bergson, Whitehead and Heidegger in the early 20th Century, and finally some of the more current philosophers of evolution, such as Bateson, Sheldrake, Capra, and Dennett, whose thought may be considered essential to an understanding of the philosophy of the evolution of Mind. The present collection of lectures has been selected and edited from the 2009 series and completed by a final series of lectures presented in 2012. The audio files of the complete series in 2009, as well as the previous series in 2008, and the complete text of the 2008 lectures, are also available, along with this collection, on the University of Human Unity website: www.universityofhumanunity.org

Table of Contents

Acknowledgment.....	1
Preface.....	2

PART 1. DARWIN AND SRI AUROBINDO

Lecture 1	
Whitehead, the Philosophic Method and Evolution.....	8
Lecture 2	
Darwin’s theory of natural selection.....	15
Lecture 3	
Haeckel’s theory of causation.....	24
Brief summary of important points.....	33
Lecture 4	
Genetics, variation, and extinction.....	37
Lecture 5	
From Biology to Philosophy.....	48
Lecture 6	
Bergson and the Limits of Rational Mind.....	60
Lecture 7	
From empiricism to intuition and the evolution of mind	
.....	75
Lecture 8	
Konrad Lorenz and the Roots of Cognition.....	85
Lecture 9	
The planes of consciousness.....	104
Lecture 10	
Sri Aurobindo and the evolution of consciousness....	117

Appendix 1. Physics and the Philosophy of Evolution

Nature's Dialectic.....	131
Uncertainty and Complementarity.....	135
Evolution and Consciousness.....	139

Appendix 2. Biology and the Philosophy of Evolution

The theory of evolution.....	149
Sri Aurobindo and Darwinism.....	158
The dualistic dilemmas.....	161
Toward an integral deconstruction.....	165
Conclusions.....	170

Appendix 3. Illustrations

Geologic eras (log).....	174
Geologic eras.....	175
Body types.....	177
Ordovician period.....	178
Genus Equus.....	179
Marine diversity.....	180
Genus Homo.....	181
Mollusks eyes.....	182
Homologies.....	183
Late Permian.....	184
Time-table of evolution.....	186

PART 2. MIND AND SUPERMIND

Lecture 1

Introduction	188
--------------------	-----

Lecture 2

The Sankhya and Yoga View	202
---------------------------------	-----

Lecture 3	
Part 1 - Aristotle's theory of soul.....	219
Part 2 - Sheldrake's theory of morphic resonance	231
Lecture 4	
Part 1 - Aristotle and Sheldrake Again.....	241
Part 2 - Sheldrake and Sri Aurobindo.....	250
Lecture 5	
Sri Aurobindo's View.....	255
Lecture 6	
Sri Aurobindo's Philosophy of Supermind.....	271
Lecture 7	
Entropy and Time.....	284
Lecture 8	
Bergson's philosophy of intuition.....	295
Lecture 9	
The Platonism of Whitehead and Sri Aurobindo.....	310
Lecture 10	
Platonic/Aristotelian thinking in the philosophy of evolution.....	327
About the Author.....	345

Acknowledgment

The material in this e-book originally appeared on the University of Human Unity website (<http://universityofhumanunity.org>) and has been published here with the kind permission of the author, Rod Hemsell. Although the material has been reformatted somewhat for clarity and ease of reading, every effort has been made to ensure that this is a faithful reproduction of the original material prepared by Rod Hemsell.

We are extremely grateful to Rod Hemsell and all of the many other authors and publishers of original works who have graciously allowed us to publish their material in multiple digital formats in our effort to increase the circulation of this very important material which mankind so desperately needs at this time in our history.

Auro e-Books is a multinational digital bookstore/library project dedicated to e-books on Well-Being and Spirituality. Its aim – to popularize and disseminate these books in digital formats both through its own website and through the network of other digital bookstores.

Krishna
“Auro e-Books” Founder

Preface

Scientific and Spiritual Knowledge

When we ask the question, What is evolution?, we want to know, to comprehend, to understand this fantastic something that we think and believe exists, that we already somehow perceive the existence of. We want to raise our consciousness with regard to this process of nature which concerns us. The fact that such a process exists in nature is probably beyond question. Not because we can perceive it directly, but we have perceived ample evidence for its existence, which in fact motivates us to want to understand it fully. It is something indeed remarkable!

But, because the existence of this wonderful process of nature cannot be directly perceived – it is spread out over billions of years – and is therefore only a concept derived from scattered observations and analyses, we have to admit that the urge to know and understand more, on the basis of the sum total of what is already known, regardless of how closely that knowledge reflects the actual truth of the process, is a mental phenomenon. We have to distinguish our knowledge of the processes that we observe in nature from the material, chemical, organic structures and processes of life themselves. As far as we understand them, these natural processes of physical and chemical and biological principles and laws are not themselves mentally conscious of their origins, their behaviors, and their destinies. And yet birds know when and where and how to build their nests and plants produce flowers and fruits with just the right nutrients for the insects and animals that feed on them. There seems to be an intelligence in nature but not an understanding in the usual sense of knowledge. Certainly the carbon atoms in the sugar molecule and the phosphorous atoms in the enzymes of the nerve synapses do not know what functions they perform in order for the animal organism to achieve its goals. The point is that there are distinctly different levels of organization in the world that we perceive and of which we are part, broadly distinguished as the

physical, the vital, and the mental levels of organization. Following Sri Aurobindo, we may refer to these as worlds, or as planes: the physical plane, the vital plane, and the mental plane. This point of view has become increasingly accepted in science and philosophy by such prominent thinkers as Konrad Lorenz, Karl Popper, A.N. Whitehead, and so on – as we shall discover in more detail as we go forward in this course. According to Sri Aurobindo, we should lose the habit of associating “consciousness” with mental awareness, and we should think of these three planes as planes of consciousness. That idea too is beginning to be accepted.

This brings us to a distinction probably only possible and natural to a mental being – between consciousness and nature, or Purusha and Prakriti. Only a mental being would distinguish between what it knows and what it is and does. That is perhaps the essence of the mental when it becomes fully evolved and operational in the human being. It perceives, it thinks, it understands things or objects, processes and concepts. However practical and matter-of-fact, or imaginative and creative such mental functioning may be, it thinks of itself as other than the things and objects that it thinks about, even though it too is such a process and part of nature. The mental is a level of the threefold world, a level of consciousness, embedded or *grounded* in nature, like life and body. This is Sri Aurobindo’s solution to the mind-body problem. Mental awareness and thought are no more or less levels of consciousness than are emotions, sensations, impulses to action and the expansion and contraction of gasses or inertia and motion. Ontologically there is no duality of mind and body. Nature is threefold: physical consciousness, vital consciousness, mental consciousness, and all are Prakriti. Purusha then is the soul within, the Self which IS, the center of being, and it has three fundamental, possible states – involved in the lower three worlds, liberated and detached, or identified with all as the master of being and becoming, Parampurusha (the self of all), and Ishwara-Shakti (the force of all).

Somewhere along the way this supreme will and spiritual being of

which evolutionary nature is the historical embodiment emerged as mind and began to reflect and understand its nature, the natural world. But its idea of separateness from what it thinks and understands, it eventually discovers is an illusion; it is deeply grounded in its world and ultimately one with it on the peaks of liberation, where Purusha and Prakriti are re-united. This is the spiritual and ontological or ontotheological explanation of an evolutionary world in which consciousness emerges as physical energy and organization, vital energy and organization, and mental energy and organization. But we still do not know, directly, experientially, adequately the process itself – how does it work, how does it happen to be mentally aware of itself, why and to what purpose has mind begun to ask such questions? Why has scientific knowledge at its height become preoccupied with these questions; and why has the master of spiritual knowledge himself made such questions central to his message, his philosophy, and his Yoga?

Traditionally, since Vyasa and Plato, knowledge has been characterized by two distinct but equally challenging and interesting fields of pursuit, or objects of understanding – the mind or spirit on the one hand and nature or matter on the other hand. The approaches to the former have been primarily mystical and philosophical and to the latter scientific and practical. This divergence in the pursuit of knowledge has been a prominent theme in the writings of the philosophers that most interest us. Both streams have been wonderfully energetic and productive throughout our recorded history. And as we approach the study of evolution and the development of a “philosophy of evolution”, it is necessary that we recognize from the start these two different approaches. One is based on faith and inner experience; the other is based on observation and analysis. The former, subjective approach doesn’t tell us anything as yet about the processes of structural evolution and adaptive biochemistry. For knowledge of this tangible realm the scientific approach is needed. The latter, objective approach doesn’t tell us anything definite about how the lower three worlds receive their forms and processes from the causal planes, or what the relationship is between the higher duality of Consciousness-Force and

the lower prakriti.

The philosophy of Herbert Spencer in the mid-19th Century described the natural world as a mechanistic process of increasing order and complexity determined by an Absolute Force standing outside and unknowable above the worlds of mind, life and body. While this view anticipated the ideas of Bergson and Prigogine about entropy and increasing complexity, it deliberately and necessarily left the unknowable alone, and set the stage for Darwin to define the process of natural selection. The wheels of materialistic science were set firmly on track to discover how physical energy leads naturally and deterministically to higher and higher levels of organization, culminating in knowledge and values. This train has carried us a long way through fascinating terrains during 150 years of unrelenting pursuit. While, at the same time, the visionaries of higher mind and creative evolution – Bergson, Whitehead, Sri Aurobindo especially – continued to pursue the Spirit, unwilling to accept that either an Absolute outside the world, or an atomistic quantitative and qualitative analysis of process can ever adequately explain the vast interconnectedness, order and unity of the three worlds, as increasingly grasped and known by intuitive mind. According to Sri Aurobindo these two tracks will necessarily converge at some point. For him, the evolution of a higher consciousness means the possibility of participating more consciously and effectively in the process of evolution itself. Many of his most inspiring writings are specifically about this possibility. Both Bergson and Whitehead felt that the spiritual and material planes of existence are engaged in an active dynamic relationship accessible to intuitive consciousness and productive of ever more perfect expressions of truth, freedom and harmony. Each has given this process a high level of importance.

The aim of philosophy, according to Whitehead, is “disclosure” which means simply seeing and revealing the truth of things. And the difficulty of philosophy, he said, is expressing what is self-evident. “The whole effort should be to display the self-evidence of basic truths.” Philosophy

is kin to poetry, he said. Both of them seek to express that ultimate good sense we term civilization. The *assemblage* of philosophical ideas moulds our civilization. His idea was that by assembling and expressing the ideas that are most important to us, we create our future. Following this beautiful thought, and also Sri Aurobindo's example*, if we can assemble and contemplate and express the ideas of evolution in a way that discloses the process itself, we may discover a philosophy of evolution that can help to show the way towards a truer, more unified and enlightened civilization. By applying the method of philosophical assembling, gathering, building (as also defined by Heidegger) – we can create the necessary common understanding of what is most important, what is most valuable, and by doing this we lay the foundations for a civilized society. This is the objective of this course.

*Rod Hemsell
Auroville, November 2010*

* Biographical note: Sri Aurobindo (1872-1950), and Mirra Alfassa (the Mother, 1878-1973), whose lives and writings are referred to periodically in this book, were spiritual teachers and Yogis, whose written works are voluminous and give particular importance to the idea of the "evolution of consciousness". Their writings may be accessed on line at <http://www.sriarobindoashram.org/>. Sri Aurobindo was nominated for the Nobel Prize for Literature, for his major philosophical work, *The Life Divine*, in 1943. For his complete works, see [Sri Aurobindo - His Writings](#).

Part 1

DARWIN AND SRI AUROBINDO

Lecture 1

Whitehead, the Philosophic Method and Evolution

"Philosophy is the critical examination of the grounds for fundamental beliefs and analysis of the basic concepts employed in their expression." This is at least one good definition of what philosophy means. And another from Encyclopedia Britannica: "The philosophy of nature, in particular, is the exploration of the features of natural reality, and their implications for metaphysics or a theory of reality or one's world view." What are the features of natural reality that we base our general theories upon? How do we arrive at an understanding of those features? These are subtexts of philosophy. What do we observe in the natural world that leads us to formulate our theories and principles?

Then we come to another essential axiom of philosophy from A. N. Whitehead: "The assemblage of philosophic ideas is more than a specialist's study. It moulds our type of civilization." It is important to note, I think, that in both the intuitive spiritual direction of mental development and the scientific and analytical direction of mental development, especially in the last 150 years, the idea of evolution has been very prominent and continues to be more and more prominent. It has, in fact, moulded our civilization in extraordinary ways. The ideas of evolution were fundamental to Sri Aurobindo's philosophy and Yoga. In the publication called *The Supramental Manifestation and Other Writings* (1970), there are hundreds of pages dwelling on the topic of evolution, and not just the spiritual view of evolution, but also detailed discussions of the scientific view of evolution. There are extensive commentaries on the theory of natural selection, there and elsewhere in his writings.

Before Sri Aurobindo became a student in London and at Cambridge, Spencer published his *Synthetic Philosophy* (1st Ed. 1862, 2nd Ed. 1867), and it became a popularly read thesis. It was first published (in part) around 1857 and it was a precursor of (actually contemporaneous with) the *Origin of Species* (1st Ed. 1859, 6th Ed. 1867). At the time that Sri

Aurobindo was there (1878-1893), T.H. Huxley was the President of the Royal Society. And he was publishing articles in magazines and newspapers very actively during the period of the 1870s, 80s, and 90s. We will find in the writings of Spencer and Huxley many clues to Sri Aurobindo's ideas, many sources of his interest. And then Bergson published *Creative Evolution* around 1907, and his earlier treatise on *Mind and Matter* around 1893, about the same time that Sri Aurobindo became a professor of French in Baroda. Bergson received the Nobel Prize for his work on the philosophy of evolution around 1928. The work of Ernst Haeckel was also published in the 1890s and the early 20th Century, and he is the one philosopher of evolution whose work is actually cited by Sri Aurobindo and by the Mother. These philosophers were their contemporaries both historically and intellectually.

The fact that Sri Aurobindo, the master of the Supramental Knowledge and Yoga, made the exploration of this subject a very prominent feature of his writings, and at the same time that it has been the most prominent topic of study in biology, physics and psychology in the last century, means that for our civilization – if Whitehead is correct – this way of thinking, this emergent understanding can be seen as the basis of our civilization's progress, its values, and what it can become. When I posed the proposition of creating a philosophy of evolution, what I meant is that we have the possibility of exploring an aspect of ourselves, nature and reality in such a way that it forms the foundation of our civilization.

Philosophy, according to Whitehead, is first of all the assemblage of ideas of importance. And an extraordinary aspect of human consciousness is that, throughout its history, it has identified and focused on such ideas of importance, which constitute its values. By focusing on these ideas of importance it decides and selects where to put its energies. It defines and refines its project. At various stages of the psychological development of the human being we can see evidence of this pattern. The ideas of religion and ethics and law and science and the organization of human communities are evidence of this

assemblage of values and the organization of society and peoples' understanding around these values. The progress of civilization moves from structure to structure of commonly understood values.

When Vladimir was speaking earlier (in his linguistics class) about consciousness being behind certain forms of expression, I'm sure some of us recognized the theme of phenomenology. Husserl's work was focused on discovering the intentionality behind the expressions of things. He identified the possibility of discovering the intentions of things as a way of getting out of the conventional rational limitations of mind back to the original nature of things themselves. And he called this realm of possible consciousness an inter-subjective reality. This is not the inter-subjective reality of Habermas and sociology, but it is a prior inter-subjective reality. It assumes an inter-subjective ground of being from which the nature of everything emanates. Then Whitehead, in his philosophy, said that there is also an expressive side of philosophy, which is the other side of its assemblage of ideas, experiences and values. There is the gathering of important ideas, values and truths, then there is the possibility of their creative expression. For Whitehead philosophy is the assembling and expressing in form of those things which are of most importance to us. He, among a few other modern philosophers, therefore says that poetry and philosophy are closely related. But while philosophy struggles to express the unity and interconnectedness of the ideas and realities that are most valuable, poetry at its height does exactly that, with a high degree of clarity.¹

As we pursue the assemblage of ideas of evolution, both scientific and intuitive – because both the scientific and intuitive streams of evolutionary ideas have been very strong in the last hundred years, – we may focus on the possibility that, as Sri Aurobindo says, these two streams must converge. The intuitive stream gives us a kind of ecstatic grasp of the unity and interconnectedness of things, but it doesn't really tell us how that consciousness and knowledge of the creative realm

¹ See Whitehead (1938), *Modes of Thought*, p. 49-50. Highly recommended reading.

transmits its forms to the phenotypes of species, how those forms are communicated and embodied in living structures from age to age. The scientific stream which tracks the incremental emergence of qualities and divergence of structures and functions doesn't tell us anything about their relationship to the realm of values, meaning, and creative emergence or novelty. They constitute the two mysteriously corresponding realms identified by Whitehead as reality and process, and by Sri Aurobindo as Spirit and Matter.

The scientific stream, with which we are very familiar, is able to deduce from the ages of incrementally unfolding life its forms and their continuity. There is a continuum of body plans and there are actually very few, a finite number, which have been evolving for a billion years. Now that the so-called new synthesis in biology between genetics and natural selection theories has been accomplished, we can also see the genetic connectedness of all species. But that doesn't tell us how the transitions were made from species to species. It only gives us very sound evidence of the unity and inter-connectedness of all species, which is now beyond question. But how nature's processes happen to remain within the constraints of established design space and manage to find optimal solutions to the problems of survival is not known; it simply is so, and it is explained by such concepts as homeostasis, variation and natural selection.

If we follow Sri Aurobindo's thinking in the direction of solving the mind-body problem by the theory of the three worlds – the physical, vital, and mental – and we come to understand that these are three levels of consciousness, they each have their characteristic formations and expressions, for example the carbon atom, the reproductive and digestive systems, and the organization of patterns of behavior, which are not separate but they are independent with respect to their principles and levels of energy – still we don't understand how these different levels of structure and function in the life world happen to be so intelligent and precise and meaningful. And these processes don't give us any evidence of being aware. Then mind emerges within this

context of matter and life as a self-awareness of the processes. As such, it is not separate from those processes.

At the higher levels of mind, we find at the top intuitive creative spiritual mind, then rational analytic practical mind, (and it understands itself well enough), and then sense mind. Thus, Sri Aurobindo solves the mind-body problem. But, at the highest levels of that emerging mentality there is an intuitive grasp of the duality of Purusa and Prakriti, and of a creative mind above the rational mind, a higher mind, intuitive mind and overmind where Purusa and Prakriti are united. Roger Penrose, the physicist, has suggested that science may evolve beyond its present methods and understand more about these ultimate things.²

Sri Aurobindo goes even further and explains that Purusa is not actually Mind, but Self, involved in mind, life and body, from which it can become detached and liberated. Then it knows itself as pure existence. It can also rise beyond this spiritual liberation to the integration of the Self and Prakriti. Then the *Parampurusha* is identified with its three levels of the lower Prakriti – mind, life, and matter, while being at the same time the liberated Master of the three worlds of form. He then explains that this higher, Supramental being is a plane of consciousness which presses down on the plane of Mind to bring forth its expressions in nature, the Mental world presses down on the Life plane to bring forth its forms of expression, and the Life world presses down on the plane of Matter to bring forth its energies and structures, thus effecting the upward dynamics of evolutionary emergence.

This is a vision that is unique to Sri Aurobindo, as far as I can tell. We find, however, that philosophers of nature such as Konrad Lorenz and Karl Popper, and a few others in the past forty years, have accepted the idea of the threefold complex, the mental, vital and physical, each operating according to its own principles within a unified evolutionary context. Lorenz's *Behind the Mirror* which was published in the 1970s,

²I do not mean to attribute mystical inclinations to Penrose. See [Appendix 1, for his comments](#).

when he also received the Nobel Prize in biology, is a work of biological philosophy that we will explore in some detail later. So, Sri Aurobindo predicted in the 1920s that science would recognize this threefold nature of the world. Fritz Capra's philosophy of life is based on the principles of self-replication or autopoiesis, the dissipation of energy to maintain forms in an unchanging state, and cognition (see Appendix 1, [Evolution and Consciousness](#)), as also recognized by Lorenz, which is the processing of information that goes on even at the most basic level of material life. Both Lorenz and Capra add consciousness (or cognition) to the triad. Both say that the transmission of impulses at the cellular level which lead to behavioral choices is in fact a mental process. We can observe these ideas in Neo-Darwinian thought, generally. For example, as Lorenz writes in 1973: "The scientist sees man as a creature who owes his qualities and functions, including his highly developed powers of cognition, to evolution, that age-long process of genesis in the course of which all organisms have come to terms with external reality, and as we say, adapt to it. This process is one of knowledge. For any adaptation to a particular circumstance of external reality presupposes that a measure of information about that circumstance has already been absorbed."³

Today the field of biological evolution is very closely related to the field of information technology. And the behavior of genes is interpreted in terms of information theory. This perception of Sri Aurobindo of the threefold lower Prakriti is in fact being widely accepted today. If we begin to assemble the early Darwinian ideas and the early intuitive, spiritual ideas of evolution, and follow their development through the early to the mid-20th Century, and then observe their development in the latter 20th Century up to the present, and allow that field of development of ideas to organize itself in our consciousness, we may realize this to be the most important way of understanding reality yet to have emerged in human consciousness. And if it begins to inspire us, and we begin to resonate with that grasp of the nature of reality, we may approach Sri Aurobindo's idea that it's possible for human beings to become participants in the evolutionary process, and begin to

³Lorenz (1973), *Behind the Mirror*, p. 6

interpret our own energies and actions in relation to the threefold Prakriti around us, as an active participation in that most fundamental reality – so that life begins to be very consciously the process of evolution, and not just a scientific understanding or mental awareness that there is such a process. At some point we should expect there to emerge another way of perceiving and energizing our reality which is evolutionary. My proposition is that a philosophy of evolution can emerge in which a philosophic understanding and intention discovers the way to an active participation in the creative evolution of consciousness and becomes the basis of a more meaningful and enlightened civilization. As Whitehead suggested, and as Sri Aurobindo demonstrated, this can be a very important and meaningful process.

Lecture 2

Darwin's theory of natural selection

We want to engage ourselves in the philosophical process, and to create a philosophy of evolution, if we can. That is primarily a process of assembling, gathering, and understanding. If you are not a naturalist and therefore, by nature, immersed in the processes of nature, then it is important to put oneself in touch with that consciousness, in order to understand something about evolution.

Are there any people here who are naturalists? If you are familiar with the theory of multiple-intelligence you will know that this school of cognitive psychology has identified eight approaches to knowledge commonly developed by individuals throughout the human species. Just as there are subspecies or varieties of butterflies, there are also varieties of human beings, according to the psychology of multiple-intelligence. And one of those, which is prominent and easily recognized, is the naturalist, the naturalist intelligence. This is the one who spontaneously, effortlessly, notices incremental differences among plants, animals, behaviors in nature. It is a cognitive faculty which makes it easy to categorize and understand lineages, and not to be satisfied without knowing and categorizing all that which you see and which you appreciate and love and are overwhelmed by. You have to put some order into all of that, and then you begin to really understand nature. If you happen to be with a person like that, walking about in nature, they will observe a hundred things in the time it takes you to ask about one thing.

Charles Darwin was one of those people. When you read his writing, you have to be amazed at the extraordinary breadth and depth of the observations he makes, and because of that he was able to write the *Origin of Species*. There were a few other people around in those days who were making similar observations and there is a historical chapter in the beginning of the book in which he mentions a group of people

who were making similar observations to his, including Wallace who was partly credited with the theory of the origin of species. In this history he remarks that "In June of 1859, Professor Huxley gave a lecture before the Royal Institution on the 'persistent types of animal life'. Referring to such cases, he remarks, 'It is difficult to comprehend the meaning of such facts as these, if we suppose that each species of animal and plant, or each great type of organization, was formed and placed upon the surface of the globe at long intervals by a distinct act of creative power.'"⁴ Difficult, indeed, to understand how individual acts of creation, which at that time were commonly thought to be the origin of species, - "individual acts of creative power" - could have placed all these species of life on the earth.

Throughout the *Origin*, Darwin frequently concludes a passage by saying that it would be very difficult to explain this series of complex interrelations by the theory of individual acts of creation. And his arguments are very convincing. We will come across some of them. I want us to hear some of Darwin's passages that make very clear the theory of evolutionary descent by variation and natural selection. That's Darwin's theory.

It was obviously a very compelling idea among philosophers and scientists in the mid 19th Century, that what we observe in nature, in terms of lasting groups, species, and genera, was apparently the result of a natural process, a phenomenon of nature. It was a very compelling need that they had at the time to distinguish that idea from the idea that species were a product of individual creation by a power other than nature, a divine power. They were obsessed with two things: making very clear the processes of nature, on the one hand, and on the other defending themselves and arguing persuasively against, for the sake of culture and education and values, the religious idea that species were created by a power outside of nature. They were obsessed with this idea.

⁴Darwin (1872, 6th Ed.) *Origin of Species*, p. 23

In an early chapter called 'Natural Selection,' Chapter 4, of the *Origin*, Darwin says, "Let it be borne in mind how infinitely complex and close fitting are the mutual relations of all organic beings to each other and to their physical conditions of life, and consequently, what infinitely varied diversities of structure might be of use to each being under changing conditions of life. Can it then be thought improbable, seeing that variations useful to man have undoubtedly occurred, that some variations useful in some way to each being in the great and complex battle of life, should occur in the course of many successive generations."⁵

Can it be thought improbable that useful variations have occurred in species through many successive generations, he asks, because we know that man has, by breeding, created useful variations. "If such do occur, can we doubt, remembering that many more individuals are born than can possibly survive, that individuals having any advantage, however slight, over others, would have a better chance of surviving and procreating their kind?"⁶ If useful variations do occur, can we doubt that individuals that have even a slight advantage over others would have a better chance of surviving? This is a kind of logic. If you have an advantage over others, and many more are born than can possibly survive, then doesn't it stand to reason that those who have an advantage will be the ones that survive, under the changing conditions of life?

"On the other hand, we may feel sure that any variation in the least degree injurious, would be rigidly destroyed." Any plant or animal born with a serious defect, along with another next to it with no defects, is probably going to be eliminated in the struggle for survival. We should have no doubt about that. "This preservation of favourable individual difference and variations, and the destruction of those which are

⁵ Ibid, p. 23

⁶ Ibid, p. 121

injurious, I have called Natural Selection.”⁷

That’s the theory of natural selection. And then he says, “Variations neither useful nor injurious would not be affected by natural selection, and would be left either a fluctuating element, as perhaps we see in certain polymorphic species, or such neutral variations would ultimately become fixed, owing to the nature of the organism and the nature of the conditions.” Darwin then says, “Several writers have misapprehended or objected to the term ‘natural selection’. Some have even imagined that natural selection induces variability, whereas it implies only the preservation of such variations as arise and are beneficial to the being under the conditions of life. No one objects to agriculturists speaking of the potent effects of man’s selection. In this case, the individual differences given by nature, which man for some reason selects, must of necessity first occur. Others have objected that the term selection implies conscious choice in the animals which become modified. It has even been urged that as plants have no volition, natural selection is not applicable to them.”⁸

Volition means will. And so, some have thought, he says, that natural selection means that plants and animals choose the variations, that there was an element of choice in the theory. Darwin wants to insist that this is definitely not the case. “It has been said that I speak of natural selection as an active power or deity, but who objects to an author speaking of the attraction of gravity as ruling the movements of the planets? Everyone knows what is meant and is implied by such metaphorical expressions which are almost necessary for brevity. It is difficult to avoid personifying the word “nature”, but I mean by nature only the aggregate action and product of many natural laws. And by laws, I mean the sequence of events as ascertained by us.”⁹

⁷Ibid, p. 121

⁸Ibid, p. 121-122

⁹Ibid, p. 122

It is difficult to avoid personifying nature. Metaphor is necessary for communication, for us to communicate about nature. Not everyone can perceive relationships of cause and effect in nature, like naturalists do. (Here we can get a pretty strong sense of Hume's influence on the thought of the day, which was committed to empiricism, the belief that we can only know what we observe, and we can only deduce and infer cause and effect relations. We can no more observe choice on the part of nature than we can observe choice on the part of God. We can only know what occurs in perception and abstraction. Such distinctions were of utmost importance to the men of science of Darwin's day.)

"Nature, if I may be allowed to personify the natural preservation or survival of the fittest, cares nothing for appearances, except in so far as they are useful to any thing. She can act on every internal organ, on every shade of constitutional difference, on the whole machinery of life. Man selects only for his own good; nature only for that of the being which she tends."¹⁰

"It may metaphorically be said, that natural selection is daily and hourly scrutinizing throughout the world, the slightest variations, rejecting those that are bad, preserving and adding up all that are good, silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life. We see nothing of these slow changes in progress, until the hand of time has marked the lapse of ages. And then, so imperfect is our view into long past geological ages, that we see only that the forms of life are now different from what they formerly were."¹¹

One of the subjects Darwin deals with at length is the causes of variation. First he says the causes of variation are infinitely complex and largely unknown to us. But at the same time he defines many likely causes of variation. One of his discussions is about the idea of the increase of species under natural conditions, in which he quotes from

¹⁰Ibid, p. 125-126

¹¹Ibid, p. 126

Linnaeus about the geometrical increase of species and the idea that it is impossible that all the products of life, all the progeny of all animals and insects, could survive. And then he has a chapter on the natural checks to increase. Some of the checks that he notices are that, among egg laying species many eggs are eaten before they hatch. Among seeding plant species many seeds are eaten before they sprout, and many are transported to other locations. At the same time there is the process of spreading which adds to diversity, and devouring which limits the number that survive. He mentions seedlings being stifled by weeds, insects and grazing. He describes the examples beautifully. It isn't at all boring to read his descriptions which flow melliflously. He mentions limitations of food supply which occur because of weather changes, and deforestation, which of course we are aware of at this time. Global warming is following human habitat destruction, and 25 % of vertebrate species have become extinct in the last thirty years. In addition to climate change he mentions epidemics, being preyed upon, and the combination of climate change and competition for food as being important factors in selection, because variations can occur that allow adaptation to both climate change and competition. These are complexes that can be observed in nature.

Now I would like to point to a philosophical aspect of this discussion. There was a tendency prevalent at that time, and still prevalent today, to think that species are unchanging, that they are fixed and were created once and for all. This is our normal experience, and Teilhard de Chardin, in fact, starts one of his books with this problem. In a period of three hundred or five hundred years, if we look at paintings and drawings and observe nature around us, we actually see pretty much the same species there all the time. In history, especially if we go back to the origins of science in the Greek period, it was universally accepted that species are eternal. The idea that species are created once and for all, not that they have evolved, is largely a product of "sequences ascertained by us", but now that we have scientific instruments and techniques, those sequences ascertained by us include the genome and the whole fossil record which was not available to Darwin. He has raised the issue in

several sections, that his theory can be questioned based on the gaps in the fossil record known at that time. There are far fewer lapses today than there were at that time. Lyell, who was a friend of Darwin, was just discovering earth changes and geological time and it was just beginning to be understood that geological time was basically beyond conception. The same excavations that were enabling the discovery of geological time were turning up enough fossil evidence so that the naturalists could see the recurrence of body plans, over long periods of time, and they could see that horses and pigs and birds had evolved.

One of the things that we will notice in the writings of Haeckel and Darwin is that they use the term “strong inheritance”. They knew that generations inherit variations, but they didn’t know how it works. They refer to inheritance as a strong factor in the process of natural selection, but Mendelian genetics hadn’t been studied yet. They are basing everything on naturalistic observation; they are travelling around observing different species on different islands, varying under different conditions, and they are inferring the process of the connectedness of species through time, and they are inferring the process of variation under different conditions, and attributing the connectedness to inheritance, and they are attributing the selection process to natural conditions, but they don’t know anything about genetics. The whole theory, which was in fact substantiated by genetics in the 1940s, was being based solely on naturalistic observation and deduction.

Similarly, in Aristotle’s time, - Aristotle was an extraordinary naturalist who wrote a taxonomy of species, who also based his philosophy of nature entirely on naturalistic observation. We will discuss his theory of evolution, which was entirely determined by the perception that species are eternal. And he produced the philosophy of forms. Whether we read Whitehead, Heidegger, Dennett, Sheldrake, or whoever, we will come across a reference to Aristotle’s philosophy of form.¹² He came up with four causes of any phenomenon. There is the material cause, the

¹² Aristotle’s theory of causation and the purposefulness of nature, *Physics, Book II*, will come up frequently in this course, especially in Lecture 5.

efficient cause, the formal cause, and the final cause. Aristotle says the material makeup of something, its matter, determines a lot of what happens to it. The matter of the human is different from the matter of the snail or the geranium or the volcano. There are material causes. The efficient cause comes from outside and moves something from place to place; it's what we do to the plant to nourish and preserve it or to the children to teach them and encourage their growth. These are external forces. Then there are the formal causes, the species, which limit what something can do or become. You will not become an elephant. An elephant will not grow until it touches the moon. Each thing is limited by its type, its form. So a bird will build a nest, lay eggs, bring food to the young until they can fly; the bird knows how to do these things because of its form, which is eternal. Aristotle learned this from Plato. The final cause is – Guess what ? – Survival, Reproduction, Knowledge, Skill, the Good (for each thing). The ultimate, final cause is called, in our language of evolution, the good, infinite, true, beautiful, powerful - the Supermind. In Sri Aurobindo's writing there are many references to Plato's conception of the Good in relation to the Supermind.

The question can be asked whether everything that happens – the material, efficient and formal causes of things – serves the good or final cause, and this is an important philosophical question. Darwin speaks about extinctions and destruction being as much a part of evolution as variation and selection, and Sri Aurobindo speaks about "nature's harsh economy". We all know that in the ignorance the spur to progress is pain.¹³ In my paper called 'Physics and the Philosophy of Evolution' (available as Appendix 1 to this course), I propose the concept of *complementarity* to deal with these dualities. But now we are just collecting material, in the form of great ideas, systematic thinking, reflection on the principles of nature as it is observed, and on the mind observing it. For philosophy these are two important questions: What is the nature of the world we observe, and what is the nature of the consciousness that is observing it? How does consciousness know that

¹³This is a fundamental tenet of the Gnostic worldview of Sri Aurobindo. See for example, Appendix 1, [Nature's Dialectic](#).

what it perceives is the reality? There are answers to these questions, solutions to the problems, that are finite and important, and I hope we come to them as a process of exploration. The important thing is to recognize the *aporias*, the questions, the enigmas.

Whenever a question arises in your mind, that's your hook, follow it.

Lecture 3

Haeckel's theory of causation

The philosophical question is, How do we know that this, or any other, knowledge is the truth? Knowing has an object, it has content. Is this knowledge true and does it enable us to really understand reality? Can we then move from that understanding to ethical judgments? Do we become better people as a result of this understanding, and does it further our civilization? These are philosophical questions. We are taking the subject of evolution from both the scientific and philosophical standpoints, because of its importance. Its importance derives from the fact that science has been totally preoccupied with it for 150 years, and Sri Aurobindo made it the foremost theme of his writing. So if we didn't think it was important before this course began, we should now think it is important! And then we should discover why it is important.

The beginning of the course, then, is an exploration of the beginning of the discovery and elaboration of the theory, in the words of some of those who are the most articulate, and then we will follow up scientifically some of their intuitions and observations, and then move on to other levels of understanding and contemplating this content. So now, we pick up some concepts, reflections, and associations of ideas concerning the theory of evolution.

I have given an excerpt of the first chapter of Haeckel's book *The Evolution of Man* (1874).¹⁴ He was the foremost early German philosopher of evolution. He was an embryologist and a very good artist. Many of his illustrations were published in Darwin's books. He has done a lot for the theory of evolution by making hundreds of very precise drawings of comparative embryology. And he arrived at a theory all his own which I think we should review. It leads to some interesting

¹⁴ Haeckel (1st Ed. 1874, 3rd Ed. 1876), *The Evolution of Man*, originally titled *History of the Evolution of Man* (1874). The first chapter is included in readings for students of the course.

ideas, though Ernst Mayr will tell us that this theory has been refuted and is not true. But that's fine; it was interesting and exploratory and we can still learn a lot from it. Haeckel said, "The history of the germ (the seed), is an epitome of the history of the descent."¹⁵ The germ carries the history of the descent of the species. This has become a very common idea, but he points out that at that time almost no one, except for a few doctors, had observed embryos, (much less chromosomes or genes). He observed a lot of embryos and knew every stage of the development of the embryo in many different species. His theory is based upon those empirical observations and thoughts. Or, in other words, he says, "Ontogeny is a recapitulation of phylogeny." Ontogeny means the development of the individual seed (embryo) and phylogeny is the history of the species. "Or," he says, "somewhat more explicitly, the series of forms through which the individual organism passes during its progress from the egg cell to its fully developed state is a brief compressed reproduction of the long series of forms through which the ancestral forms of its species have passed from the earliest periods of so-called organic creation down to the present time."¹⁶

"The causal nature of the relation which connects the history of the germ with that of the tribe," this is the theory that ontogeny recapitulates phylogeny – by tribe he means the history of the descent of the phylum.

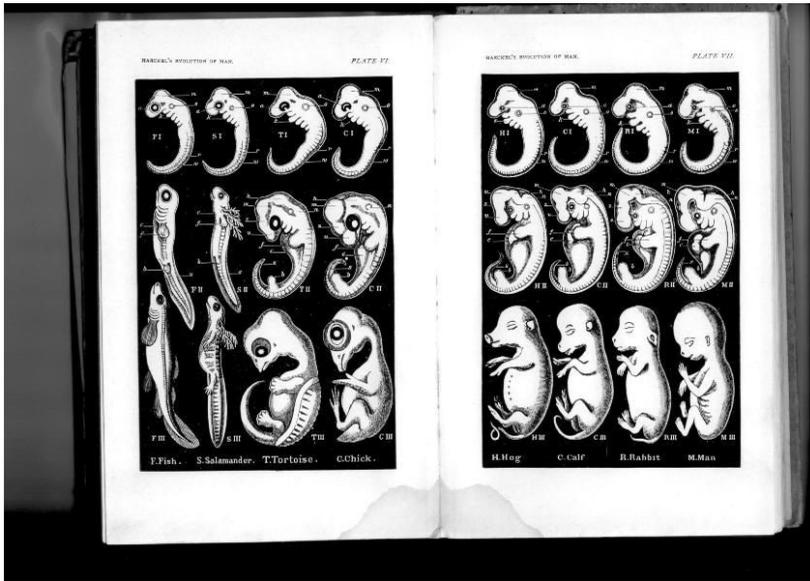
Now we can look at some pictures drawn by Haeckel (see illustration below).¹⁷ We can imagine that the embryo of the animal (man) goes through all of these stages of development, and there is a causal relation which connects this history of the germ with that of the descent of the tribe – all the related species that have developed through time. "The causal nature of the relation is dependent on the phenomena of heredity and adaptation. When these are properly understood and their

¹⁵Ibid, p.6

¹⁶Ibid, p. 6-7

¹⁷Ibid, p. 363-365

fundamental importance in determining the forms of organisms recognized, we may go a step further and say that phylogenesis is the mechanical cause of ontogenesis."¹⁸ All those forms that have preceded a specie's development come together as a causal determinant of the present form, unfolding sequentially in the embryo, from the worm to the fish to the reptile to the earlier mammalian forms to the present form.



Scientists are looking for cause-effect relationships. We can see that the embryo is recapitulating the species from which it has descended so we must ask how it happens. He decides that it does this because what the parent is, is the result of all that, and somehow, through heredity it causes the same thing to repeat in its offspring. They didn't know about genetics yet. But they knew heredity was happening, that variation and change were happening, and they asked themselves the question How? Haeckel had a very active imagination, and he decided that heredity was the mechanism and it was caused by the historical pattern itself being present in the parent.

¹⁸ Ibid, p. 7

Later he says some other very interesting things. "For example, from the fact that the human egg is a simple cell, we may at once infer that there has been at a very remote time a unicellular ancestor of the human race, resembling an amoeba. From the fact that the human embryo consists of two simple germ layers, we may at once safely infer that a very ancient ancestral form is represented by the two-layered gastria. A later embryonic form of the human being points with equal certainty to a primitive worm-like ancestral form which is related to the sea squirts or ascidians of the present day. But the low animal forms which constitute the ancestral line between the unicellular amoeba and the gastria and further between the gastria and ascidian form can only be approximately conjectured with the aid of comparative anatomy and ontogeny."¹⁹

Modern genetics has established that our species has in fact descended from worms, gastropods, starfish, insects, coelacanths, frogs, and shrews before primates (see [Appendix 3, Body types](#)). This is well established science. It is really remarkable. Haeckel was right, and he got it by observing embryos. It is now absolutely certain what this line of development was. By the way, the worm stage of our development was 600 million years ago, the starfish stage was 570 mil years ago, the coelacanth was only 425 mil years ago, and the shrew stage was about 80 mil years ago, around the time of the extinction of dinosaurs. This is the line of descent of the phylum chordata, of which we are the most recent species. All these guys have the same nervous systems and genetic make up as we do but it has become more complex as time has gone on, and now it is known precisely at what time in history each stage developed.

Now it is known at what time in history the *hox* gene added more nucleotides to make further organ development possible. This is the gene that determines the sequential development of spatial organization and placement of organs in the embryo and where to put the head and tail. It consisted of one nucleotide chain at the time of the

¹⁹Ibid, p. 9

worm stage, and replicated itself again and again until at the present time in the human being it consists of 38 nucleotide chains, and each activates some aspect of the development of organs at the right time in the embryo. The stages of the embryo are there as a result of the *hox* genes, which stimulate the sequence of development, not because the parent carries those forms. Developmental forms are in fact often missing in the embryo. (A larger discussion of this topic is given in the audio file.) Much of Haeckel's book is an effort to explain why this is so, because it contradicts his theory. The pre-existent forms are not the causes, although they are a visible sign of connectedness and the continuity of forms.

He was also preoccupied with this idea, that "From this theory we first learn the efficient causes of individual evolution... and we perceive that such mechanical causes alone suffice to effect the evolution of the individual organism, and that the co-operation of designing or teleological causes, that such final causes which were formerly universally assumed are unnecessary."²⁰ He hasn't actually discovered any efficient causes. He has postulated that the phylogenetic descent of forms causes the stages of embryonic development. But this is a fundamental error in human thought, which was the subject of Hume's philosophy. We infer, from related events that recur, causal relationships. Even today it is not known exactly how the *hox* genes cause the related stages and sequences of the development of the organs. At the same time, it has been discovered that there are many different areas on the genes that produce chemicals which stimulate different processes, and there is no clear direct causal relationships but only a close observable proximity of chemical events. On this basis there is experimentation, for example transplanting the *hox* gene, or the related *pax* gene, which is associated with eye development, from a mouse to the leg of a fly which then grows an eye on that body part. But it doesn't stimulate mouse eye development; it stimulates the compound eye development of the fly. *Hox* genes are universal in the animal kingdom and yet they stimulate the development that is

²⁰Ibid, p. 16

appropriate in all species. More complex species have more complex genes which determine the body plan. (See Appendix 3, [Body types](#))

These pictures indicate six different body plans of distinct phyla which have all derived from the same amoeboid cell; they are phyla in the consecutive sense of descent from a common origin. The phylogenetic descent is pictured there, and in the embryo of each we may presume that the forms of the prior species are there. But again, how this happens is not really observable. By comparing the phylogenetic descent of species, and the progressive development of body plans, we can infer along with Haeckel that the earlier forms are somehow contained in the later, and now we also know that their genes have been passed along by heredity in a perfect continuum. And we can infer, along with Mayr, that Haeckel's hypothetical interpretation of forms as efficient causes, or that ontogeny recapitulates phylogeny, is disproven by genetics. (The audio file contains a rather long digression, concerning the appearance of different life forms in deep biological time, deleted from this text. It is taken up later in Lecture 4.)

Let's finish with this section on Haeckel, who says, "The final causes which were formerly universally assumed are no longer necessary. I allude to this matter at this early stage (chapter one), in order to draw attention to one of the most important advances made in any branch of human knowledge during the past ten years. The history of philosophy shows that in the cosmology of our day, as in that of antiquity, final causes are almost universally deemed to be the real ultimate causes of the phenomena of organic life, and especially those of the life of man, the prevailing doctrine of design or teleology."²¹ (Teleology means that things that come into existence in the future are determined by a purpose that was already there, called the final cause. We ended our lecture last time with Aristotle's idea that there are four causes – material, efficient, formal and final. He now seems to be saying that the formal cause is the efficient cause.) "The prevailing doctrine of teleology assumes that the phenomena of organic life and evolution are

²¹ Ibid, p. 16

explicable only by purposive causes, and that on the contrary they in no way admit of a mechanical explanation. The most difficult problems in this respect which have been before us and which seemed capable of solution only by means of teleology are precisely those which have been mechanically solved in the theory of descent. We shall see in the course of our enquiries how through Darwin's doctrine of evolution the most wonderful problems hitherto deemed unapproachable have admitted to a natural solution."²²

I just want to recall these phrases of Haeckel: "...The series of forms through which the individual organism passes during its progress from the egg to its fully developed state is a brief compressed reproduction of the long series of forms through which the animal ancestors of that organism have passed from the earliest periods of organic creation, ... The causal nature of the relation which connects the history of the germ with that of the tribe... Phylogenesis is the mechanical cause of Ontogenesis." The forms of the past create, causally, the development of the stages of the embryo. The shrew form creates in the next shrew body the same form, by heredity, and if it diverges and becomes another species through variation then that new form will create a reproduction of itself. This is the doctrine of formal causes – the human being always creates more human beings because we embody the human "form". It is the doctrine of Platonic forms applied to scientific understanding. (Haeckel seems to say that the notion of teleology has been replaced by the mechanics of ontogenesis.)

Mayr²³ said the idea that ontogeny recapitulates phylogeny is wrong because the relationship is not causal. The forms themselves don't cause anything according to genetic theory. But we can hold that idea, because we do observe that forms reproduce themselves. The material cause is the hox gene, the efficient cause is the sperm or egg, the formal cause is the product which looks like the parent body that grows up.

²²Ibid, p. 16-17

²³Mayr (2001), *What Evolution Is*, p. 31-32

The final cause is the divine life, the Good, the Supermind.

At the same time that Haeckel wants to assert a mechanical cause, the cause that he identifies is the form. All the forms that have evolved before are somehow still exerting a causal effect on the development of the new organism. Few scientists today are going to think that the form of the geranium or the shrew or the human is out there somewhere exerting a causal influence on embryonic development. But there are those today, such as Rupert Sheldrake, who continue to ponder the fact of stability and persistence whereby the form continues to maintain itself virtually unchanged through many thousands of generations. And perhaps we would be well advised to keep in view all four causes identified by Aristotle as necessary to explain the phenomena of life.

Finally, let's turn to Darwin in the *Origin of Species* for a more exact representation of his theory. Darwin says, "The many slight differences which appear in the offspring from the same parents, or which it may be presumed have thus arisen, from being observed in individuals of the same species inhabiting the same confined locality, may be called individual differences. No one supposes that all the individuals of the same species are cast in the same actual mould. These individual differences are of the highest importance for us for they are often inherited as must be familiar to everyone. And they thus afford materials for natural selection to act upon and accumulate... These individual differences generally affect what naturalists consider unimportant parts. But I could show by a long catalogue of facts that parts which must be called important sometimes vary in the individuals of the same species."²⁴ (So, he says, important parts also vary. For example, the brain of five different generations of humans isn't the same, although we don't notice the differences, neither is the location of moles and freckles. We notice only the unimportant variations.)

Then he says, "It should be remembered that the systematists are far from being pleased at finding variability in important characters."

²⁴Darwin (1872), p. 76

Because of this propensity for thinking that species don't change from generation to generation - the shrews have always been there, they haven't changed in 500 years, the grasshoppers haven't changed, the potatoes haven't changed, so - they must be eternal. It is much easier for classification if they are eternal. Then he says, "there are not many men who will laboriously examine internal and important organs, and compare them in many specimens of the same species. ...Authors sometimes argue in a circle when they state that important organs never vary; and under this point of view, no instance will ever be found of an important part varying; but under any other point of view many instances assuredly can be given."²⁵

It is difficult to see, as Darwin might say, how the idea of pre-existing embryonic forms could possibly explain such important individual differences, which in the end may lead to the evolution of new adaptations and new speciation. What Haeckel has observed is the maintenance and gradual variation of phylogenetic (historical) development – an important aspect of evolutionary theory no doubt, but his theory of ontogenesis does not explain the incremental changes pointed out by Darwin as the most important factor of evolutionary change.

The topic that emerges most directly from this discussion is the topic of the emergence of homologous parts in different species that have varied in the same parts (see Appendix 3, [Homologies](#)).²⁶ These are turtle, dolphin, bat, bird, horse, human fingers. The idea of variation is that under varying conditions of survival, in one species there will be a gradual selection of those members that have begun to vary and diversify in some advantageous way. And at some point there will be a divergence through gradual minimal changes in a bone structure like these, and there will eventually be an advantage to some members who have developed longer or shorter fingers. You can see this clearly.

²⁵ Ibid, p. 77

²⁶ Ayala (2008), *Introduction to evolution*, p. 66.

Notice that the horse has been assigned only three digits, four and three, the chicken four, and the others have all five. Let's look at horse leg development through time (see Appendix 3, [Genus Equus](#)). Fifty-five million years ago, the horse had these four digits; forty million years ago the horse had three digits here and one there, twenty-five million years ago the horse had these three that were changing significantly, and as of five million years ago the horse had a hoof. When the horse was only two and a half feet tall and was not far away from the time when he was a shrew and used his fingers to hold things, he gradually found that his teeth were developing for biting off leaves from trees and he didn't need those grasping fingers any more. And those that had better developed jaws, and hooves for running, to get away from predators faster, those are the ones that survived. In good museums you can see all of these reconstructed stages of skeletal structure and development.

So, homologous development of important parts has occurred across the members of these species through the gradual differentiation by adaptation, communicated by heredity, with natural selection of those forms that were advantageous. And if very successful, then radial adaptation takes place and a large number of related species with similar homologous development share different niches and are no longer so competitive, (such as quadrupeds that graze for food and share an African savannah). Nature has figured out how to make the principle of diversity most advantageous. And all of those diverse developments share one common genetic structure.(A longer discussion of the evolution of the eye ensues in the audio file. See Appendix 1, [Mollusks eyes](#))

Brief summary of important points

Let us resume for a moment the recurring themes of the natural processes of change in evolution (generally associated with material and efficient causes) versus eternal forms and fixed types, (associated with formal and final causes), and follow the arguments that preoccupied Darwin and Haeckel a bit further. "It should be

remembered” says Darwin, “that the systematists are far from being pleased at finding variability in important characters,” ...because of the human propensity for thinking that species remain the same forever. Shrews haven’t changed, grasshoppers haven’t changed, elephants haven’t changed, potatoes haven’t changed in a few hundred or a few thousand years, as far as we can tell, so they must be eternal. And it’s much easier for classification if they are eternal. Then he says, “There are not many men who will laboriously examine internal and important organs and compare them in many specimens of the same species. Authors sometimes argue in a circle when they state that important organs never vary. For these same authors rank those parts as important which do not vary perceptibly. And under this point of view no instance will ever be found of an important part varying. But under any other point of view many instances assuredly can be given.”

Now Haeckel was one of those who was willing to laboriously examine the internal organs of many specimens, especially the embryos of many species, and he certainly didn’t think that important organs were invariable. He perceived many similarities and differences in the “form” of the different stages of an organism’s development. And he came to the conclusion that the forms he perceived were the cause, rather than the effect, of the different stages of development. Moreover, he concluded from these observations of the continuity of variation in forms that they were moving towards a common goal. Thus he demonstrated the persistent and compelling influence of Aristotle’s idea of formal and final causes even on the great scientific minds of the day. On final causes, he writes in that first chapter:

“In undertaking to describe the most important characteristics of these significant phenomena, and to trace them back to their final causes, I shall assign a much greater scope and aim to the History of the Evolution of Man than is usual. ...Phylogeny is the history of the evolution of the descent of man, that is, of the evolution of the various animal forms through which, in the course of countless ages, mankind has gradually passed into its present form... the natural evolution of

man through lower animal forms.”

The implication is clear: man was the final cause from the beginning, and the many forms that emerged along the way were in some sense the carriers of his destiny. Even though Haeckel attributes the most important advances of the period to the thrust of Darwin’s efficient causes, away from the essentialism of the past and towards the primary importance of natural processes to explain evolution – variation and adaptation, and in spite of his own devotion to empirical knowledge, Haeckel’s thinking appears to have remained tied to the classical notion of final causes.

Another important topic in the study of Darwinian processes of evolution is “correlated development” – the appearance of organs at the same time in a specie’s evolution, although not all are necessary adaptations. They are structures or organs that are always present together in the species, which emerge in the embryo according to a pattern, coordinated in their successive development by the hox gene. This recurring body plan of a species or group of species was known by Haeckel and others of his day as the *bauplan*. Cuvier thought there were four distinct body plans in nature, in the 18th century, and today it is generally agreed that there are about 38, still quite a finite number considering the hundreds of thousands of different species that exist. These basic plans have emerged at different time periods and have persisted for such long periods of time that they may seem to be eternal. Along with each plan there is an infinite variety, and correlated variations which constitute what we know and recognize as a particular species. This is the phenotype – what we see and know. The genetic pattern that underlies the development of its characteristic structures is the genotype. And we still do not understand the relationship between the genotype and phenotype.

From the point of view of genetics, material and efficient causes are more evident than formal and final causes. And yet the structures that are apparently the product of correlated development, in a purely

mechanical way, may at a later time in the specie's development become essential for its survival. Then the form and its purpose seem to be determining the processes of natural selection. Could we then infer that nature was looking ahead when she made genes that had potentials other than those that depended on adaptation and natural selection? Well, Darwin acknowledged a variety of processes, in addition to natural selection, that influence the evolution of species and the emergence of diverse variations of form, in complex ways that we simply do not understand.

Lecture 4

Genetics, variation, and extinction

In the last lecture we made the observation, based on Haeckel's ideas, that, as he said, the human being has travelled from the annelida, 540 million years ago, through all the phyletic lines of development up (or down) to the present. Of course the human being wasn't there in the annelida, but the idea we get from this conception of "descent" is that of a continuum of intricately connected development from the origin of life until the present. The picture that emerges from the science of evolution is of an evolutionary continuum that diversifies gradually over an immense span of time.

If we think about the idea of unity in diversity, and the idea of Auroville as a laboratory of evolution, and we contemplate Sri Aurobindo's idea that this unity exists; it is not something to be created; then, possibly, the study of evolution and the inter-connectedness of everything could help us gain a sense of what unity in diversity really means. When we think about that odd word, which is probably pronounced "hox" and not "hoax", which we share with every species and which determines the body plan of every species; or if we think about the pax 6 gene which makes the eye develop in every different type of creature that has an eye – from the earliest eye spot in the paramecium to all the different types of eye that have evolved – if we contemplate this molecular structure that sits in every cell and has been there since the very beginning of animal organisms: in every species the *hox gene*²⁷ determines the development of the body and where each segment goes. The structural development is stimulated by that gene in all animals, and the eye structure is stimulated by the pax 6 gene in all animals. That is a kind of unity that is shared with untold thousands of species. We also share other types of unity, such as with other chordates

²⁷ Ayala, *Introduction to evolution* (the "Blue Book" for this course) p. 73, from **evolution**. (2008). Encyclopædia Britannica. *Encyclopædia Britannica 2007 Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.

with which we share our mammalian body plan, but we do not share it with spiders and starfish. But spiders and starfish are there in the phyletic lineage of which we are the result. Each of the body plans that we discussed last time, and there are about as many as there are hox genes – about 38 different body plans – each one develops according to the stimulation at a particular time in the embryonic process when it is appropriate for the head to form, or some other body structure to form, such as the body cavity, chest, abdomen, legs, etc. Just as in the pax 6 gene, when the eye starts to develop, that gene stimulates the protein processing that forms the different parts of the eye structure, which is a group of cells that have a specific function.

So this is a type of unity. If we observe different animals in nature, if we are naturalists, we recognize behaviours that are familiar to us. It is an incredible experience, and in this south Indian forest environment it is relatively easy to get to know your local termite community and your local mongoose. We observe pets normally in civilization, which are largely products of human selectivity, but we don't notice it as such a natural phenomenon. In nature we can experience our identity with natural creatures, and we notice that we share not only structures but also behaviors. If we concentrate on similarities between species or between members of a species, if we concentrate on our similarities in this group of human beings, we can experience a very profound identity. We look alike, breathe alike, walk alike, we understand our oneness as human beings, we understand ourselves as the members of a group. But if we look at our differences, we will ask, How can we possibly be products of the same genes? None of us is at all like another in many details. So, in our thinking, we tend to reflect this dual nature of reality. There is a way of looking at things which reveals the unity of form, and structure, type, thought patterns, behavior patterns; there is another way of looking at things which reveals the infinite differences in every thing. We can go either way in our study, our research. In science in particular it is possible to move endlessly through the realms of difference and only to occasionally group things according to similarities. And this is precisely what evolutionary science does. It

scrutinizes every single difference. When we follow that kind of thinking we can come to a kind of understanding of genetics which yields information like the concept of heterozygosity, the immense variation within our own chromosomes.

“Techniques for determining heterozygosity have been used to investigate numerous species of plants and animals. Typically, insects and other invertebrates are more varied genetically than mammals and other vertebrates, and plants bred by outcrossing (crossing with relatively unrelated strains) exhibit more variation than those bred by self-pollination. But the amount of genetic variation is in any case astounding. Consider as an example humans, whose level of variation is about the same as that of other mammals. The human heterozygosity value at the level of proteins is stated as $H = 0.067$, which means that an individual is heterozygous at 6.7 percent of his genes, because the two genes at each locus encode slightly different proteins. The [Human Genome Project](http://www.britannica.com/search?query=Human+Genome+Project) (<http://www.britannica.com/search?query=Human+Genome+Project>) demonstrated that there are at least 30,000 genes in humans. This means that a person is heterozygous at no fewer than $30,000 \times 0.067 = 2,010$ gene loci. An individual heterozygous at one locus (Aa) can produce two different kinds of sex cells, or [gamete](http://www.britannica.com/EBchecked/topic/224938/gamete) (<http://www.britannica.com/EBchecked/topic/224938/gamete>), one with each allele (A and a); an individual heterozygous at two loci ($AaBb$) can produce four kinds of gametes (AB , Ab , aB , and ab); an individual heterozygous at n loci can potentially produce 2^n different gametes. Therefore, a typical human individual has the potential to produce $2^{2,010}$, or approximately 10^{605} (1 with 605 zeros following it), different kinds of gametes. That number is much larger than the estimated number of atoms in the universe, about 10^{80} .²⁸

Every one of these hundreds of thousands of chromosomes has a different arrangement of genes on it. When one of those genes divides and recombines with a partner gene, one out of those tens of millions of possibilities will result.

²⁸ Ibid, p. 31

"It is clear, then, that every sex cell produced by a human being is genetically different from every other sex cell and, therefore, that no two persons who ever existed or will ever exist are likely to be genetically identical – with the exception of [identical twins](http://www.britannica.com/EBchecked/topic/281878/identical-twin) (<http://www.britannica.com/EBchecked/topic/281878/identical-twin>), which develop from a single fertilized ovum. The same conclusion applies to all organisms that reproduce sexually; every individual represents a unique genetic configuration that will likely never be repeated again. This enormous reservoir of genetic variation in natural populations provides virtually unlimited opportunities for evolutionary change in response to the environmental constraints and the needs of the organisms."²⁹

If we have any skepticism about the ability of different phyletic lineages to produce innumerable varieties in each generation, we should lose that skepticism on the basis of this genetic information. Just because all of the butterflies look the same to us doesn't mean that they are all the same. The fact that hippos and buffalo and pigs and cows and human beings have all descended from shrews should not be so amazing if we have a perspective on the infinite variety of individuals that is produced in every generation of every species. And so Darwin observed that, as a result of these infinite variations which recombine and, if there is any slight advantage, reproduce themselves, at some point there may be an accumulation of variations that enhances the survivability of a certain group under changing environmental conditions. At some point in time that group may become so different from the parent group that they can no longer interbreed. One of the things that helps along the way is a major earth change so that the two groups can't associate at all and they become isolated. Varieties throughout time have periodically become isolated from their parent lineages and completely new lines of development have become possible. The main factor in that new series is the environment. The environment changes and the species that move into a new environment find a niche that is comfortable and survivable, eat another kind of food, inhabit another kind of soil, and

²⁹Ibid, p. 31

Darwin says there is an inherited effect of such environmental adaptations. He gives the example of plants that move from one environment to another and produce different colors of flowers, and the domestic duck which developed lighter wing bones and heavier leg bones as a result of not needing to fly. He gives the example of the mole shrew which as a result of burrowing eventually loses eye sight and develops forelimbs modified for digging.

Question: Does the greater number of genes in a species correspond to size?

Answer: No.

Question: Do fewer genes result in less variety in a species?

Answer: Maybe. If you think about the variety of human beings, which occupy practically every possible niche, it is infinitely greater than the hippopotamus which is confined to the river. Structurally there may be a high degree of diversity in the lower species but not behavioral diversity. The number of genes is not particularly smaller in the hippo, but in the human being there is a leap in consciousness. Diversification among lower species has resulted in speciation. Diversity in human beings has resulted in an infinite variety of human beings who can adapt to every niche. (This point has been strongly emphasized by Teilhard de Chardin in his theory of complexity.) If we had been less adaptable we might have been confined earlier to a particular niche and another species might have succeeded us sooner.

We have a picture of the human beings that have preceded us. And we can look at the horse as an example. The small horse is an example of a relative of ours who fifty million years ago was not so tall; in a relatively short period of time he moved to higher ground, needed to be able to run from predators, and developed jaws for chewing leaves and bark. This is an example of an enormous range of variation within one species.

Horse lovers will know that the earth is populated today with an extraordinary variety of horses and they are very intelligent. (see Appendix 3, [Genus Equus](#))

Let us look at our more immediate relatives. We are closely related to the various hominids we see in Appendix 3, [Genus Homo](#). Kenyanthropus was 3 million years ago. We can look quickly at the way these humans moved from 3 million years ago to homo habilis, and homo ergaster who became homo erectus, those guys overlap and interbreed with others, and eventually we get to homo erectus who appears to have moved in the direction of heidelbergensis, with neanderthalis genes apparently present in the human being, and homo sapiens is the one that finally survives and has a larger brain than the others. He appeared, recognizably, around 40-50,000 years ago and was apparently the final result of this movement.

Now, another way of looking at this question of the diversification of species is the punctuated equilibrium view, which I would like to cover tonight. (See Appendix 3, [Geological eras \(log\)](#) and [Time-table of evolution](#)) According to this view there have been several major extinctions throughout biological time. This time line shows a few of the mass extinctions that have occurred. When the Cambrian explosion took place, an explosion of arthropods took place in seas all over the world 500 million years ago, which consisted of more phyla and body plans than now exist, prior to which there were only one celled organisms. When almost 85% of life forms became extinct at the end of the Cambrian, there followed a further diversification of species during the 50 million years of the Silurian, when the forerunners of the 38 phyla that now exist evolved. Then after another 150 million years of diversification, another mass extinction occurred in the Devonian, and another in the Permian when 95% of life became extinct. Following the Permian extinction, 250 million years ago, came the age of the great reptiles. And after the Triassic extinction there followed the age of mammals.

Steve Gould suggests that when these major extinctions occur, suddenly all the niches become empty and this rapid diversification can take place, at that edge of time. As more niches become filled the possibilities of diversification recede. He calls this process punctuated equilibrium. After a long period of increasing stability, a sudden mass extinction provides an opening for rapid species diversification.

Question: Does that suggest that the mass extinction we are headed towards next is actually a positive opportunity?

Answer: It may suggest that, if you consider that each major stage of evolution constitutes an improvement on the past. Many writers tell us that we are in the midst of a mass extinction now. The Living Planet report tells us that 25-30% of vertebrates have become extinct in the last 25 years. This has also been the theme of E.O. Wilson's work for many years.

One curious thing that has been discovered in the last forty years or so is that many of these mass extinctions have corresponded to major geological earth changes. You might be interested to know that during the Ordovician period the earth looked like this. (See diagrams, Appendix 3, [Ordovician period](#). *A brief discussion of plate tectonics and evolution ensues in the audio recording which may be pursued on-line by the interested student.*)

The point I would like to come back to – a way of thinking (between Darwinian gradualism and punctuated equilibrium theories) – whether we choose to become geologists and paleontologists, or biologists and evolutionary ecologists, we can go on indefinitely discovering patterns of the physical environment of life. We can follow both the standard Darwinian gradualism of species variation eventually becoming speciation, as a result of the infinite variety of differences produced in every generation plus major land mass changes which isolate species; we can follow that Darwinian view of gradualism easily and discover the

relationships among species through time. And we can also follow the paleontological point of view and discover that there have been sudden explosions of species due to the openness of the niches after major extinctions, and also due to the fact that those species that survived the previous extinction had not yet diversified into stable large groups. And so Gould suggests that the genetic material itself is much more flexible during that period than it is after the diversification has resulted in species that have settled into a niche and reproduced themselves over millions of years, when it is no longer capable of the degree of diversification which existed after the extinction had taken place.

If earth changes due to global warming result in sea level rise, then we will see a migration of species away from all the coast lines, and completely new environmental conditions will be asking us to adapt. Some will be more adaptable than others, and in another few hundred years without electricity and land covered by seas, our bodies will adjust. In Sri Aurobindo's reflections on this Darwinian picture he already speculates on punctuated equilibrium (known then as saltation), and he questions the process of Darwinian selection itself, not in the sense of doubting that it occurs and not that heredity is not the main process, but he raises some interesting questions about the psychology of the process. What's being carried forward, for example between moles and hippos, is not only physical structure but it is what he refers to as predispositions. Some moles are predisposed to live in that wet dark environment under the earth, and some are predisposed to live in trees. Geneticists today are agreed that shrews are the common ancestors of larger mammals. So some shrews became wetland dwellers and eventually hippos and whales, and some became tree dwellers and eventually primates.³⁰

³⁰Dawkins (2004), *The Ancestor's Tale*, "Rendezvous 15 takes place approximately 180 million years ago... The southern continent of Gondwana was still just about connected to the great northern continent of Laurasia – the first time on our backwards journey that we find all major land-masses collected into a continuous 'Pangaea'(p. 163). ...What did Concestor 15 look like? Fossils of the right vintage in the Jurassic Period belong to various types of small shrew-like or rodent-like animals such as Morganucodon (p. 241)...Concestor 16 looked like a lizard. The gap from Concestor

Question; Why do you say shrews and hippos, they are so different?

Well, there is a clear line of development. And think about the time frame we are looking at. This enormous diversification of mammals has happened just since the dinosaurs became extinct 65 million years ago. In just 65 million years all the species we know on earth today have descended from a few common ancestors. The chordates have evolved an enormous variety of species in a short time. Human evolution has occurred in only 4 to 5 million years. There are many questions that pop up in a field of information like this and they can lead to lifelong pursuits of comparative zoology, embryology, genetics, and so on.

Question: There has been this line of questioning about reptiles being embodied in human beings...?

Answer: ...Please read the information handbook and it will answer many of your scientific questions, but it will not answer the philosophical questions.

Philosophically, what can we do with all of this information about unity and diversity? Can we use this information to give ourselves a more intimate sense of being connected to other life forms, starting with human beings. Can we learn to concentrate on the evolutionary behaviors that enhance survival? Because we belong to a single species whose existence may be threatened. And we can easily learn that most species survive through cooperation. There is another branch of evolutionary science which explores the behavior patterns of species which enhance their survival, known as ethology (not ethnology).

Question: But it is not always about survival. It's often only about adaptation and niches.

15, which looked like a shrew, is too great to leave unbridged. ...It was a member of a group of mammal-like reptiles called the cynodonts (p.258)."

Answer: It's also about diversification. Diversification is the principle that Sri Aurobindo has dwelt upon as the most fundamental truth of nature. It's unity *in* diversity – it's not unification or uniformity. It is through diversity that the principle of unity is realized. It is through maximum differentiation that maximum unity is manifested.

Question: What is the common denominator of that unity inside diversity?

Answer: There are many common denominators. One common denominator is the genome which is a unifying factor at the sub-microscopic, molecular level. At another level, consciousness, the ability to make judgments that lead to group success is very important. There was a time in the past when social groups (of human beings) understood their unity through language and culture but they considered themselves enemies of the tribes on another continent. Although they were drawn together by various factors they considered themselves enemies of others. Nowadays, because of intercultural sharing, we tend to consider ourselves members of one human group, even though there are many linguistic, cultural differences, different learning styles, predispositions to be more right brain or more left brain, more artistic or more political. Some of our political behaviors or family behaviors that we have brought from the past have questionable validity, but we are able to recognize these limitations and make choices. We are able to see more and more clearly that war is probably no longer the best way to solve social problems, for example.

All of the older forms of human behavior are still present but we are moving as a species towards balancing what we perceive to be the principles of unity and diversity and we are able to explore farther and farther reaches of diversity out to the Infinite. That infinite includes everything, excludes none, and is One. If we can somehow grasp the relationship between the unity and the diversity, and yet that the diversification leads to more clearly defined unities, we might come

eventually to what the Mother struggled with... Philosophically, without going into the question of the future of human evolution, what is possible for us right now on the basis of our knowledge and the clues that we have been given about the higher ranges of consciousness? How can we unify in our consciousness the infinite diversity and the absolute unity? (A longer discussion of stability and change from a spiritual perspective is included in the audio file.)

Lecture 5

From Biology to Philosophy

Aristotle, in the physics, and by the way physics for Aristotle doesn't mean physics as we know it. The Greek word is *phusis*. Phusis means nature. Here is a definition of nature from Aristotle. And Aristotle's physics, by the way, is very readable and rich in interesting ideas. And all philosophers read it, as well as the Metaphysics, which is about morals and God. So - nature as opposed to intellectual and spiritual levels of being. He says,

A difficulty presents itself: why should not nature work, not for the sake of something, nor because it is better so, but just as the sky rains, not in order to make the corn grow, but of necessity? What is drawn up must cool, and what has been cooled must become water and descend, the result of this being that the corn grows. Similarly if a man's crop is spoiled on the threshing-floor, the rain did not fall for the sake of this— in order that the crop might be spoiled— but that result just followed. Why then should it not be the same with the parts in nature, for example that our teeth should come up of necessity— the front teeth sharp, fitted for tearing, the molars broad and useful for grinding down the food— since they did not arise for this end, but it was merely a coincidental result; and so with all other parts in which we suppose that there is purpose? Wherever then all the parts came about just what they would have been if they had come to be for an end, such things survived, being organized spontaneously in a fitting way; whereas those which grew otherwise perished and continue to perish.

Such are the arguments (and others of the kind) which may cause difficulty on this point. Yet it is impossible that this should be the true view. For teeth and all other natural things either invariably or normally come about in a given way; but of not one of the results of chance or spontaneity is this true.

(In other words, the definition of chance and spontaneity is “those things that come about randomly, for no particular purpose. But those things which come about by “nature” come about for a purpose.)

We do not ascribe to chance or mere coincidence the frequency of rain in winter, but frequent rain in summer we do; nor heat in the dog-days, but only if we have it in winter. If then, it is agreed that things are either the result of coincidence or for an end, and these cannot be the result of coincidence or spontaneity, it follows that they must be for an end. And that such things are all due to nature even the champions of the theory which is before us would agree. Therefore action for an end is present in things which come to be and are by nature.”³¹

‘Action for an end is present in things which come to be and are by nature.’ Aristotle’s perception was that everything natural comes about for an end, for a purpose. This is the definition of ‘nature’ under which western thinkers have thought for two thousand four hundred years. If we remember what we have seen over the past four weeks regarding the interconnectedness of life and the variation in species which have lead eventually to a diversification of species, and if we visualize those functions and structures that are the object of the theory of evolution primarily – as far as we can imagine them – we probably would not have a hard time agreeing that, as Darwin said, all of those variations were adaptations for a purpose. All of the ones worth noting, the vast majority of structures and functions, with few exceptions, have helped the entity survive in the context of the environment and in the context of the organs and processes of the body. And so Darwin has said that incident forces cause natural organisms to vary and adapt.

There is the example he gave of the duck whose wings become lighter and legs become heavier, and the mole who lives under the ground and becomes blind, and the mole who lived in the marshes and becomes a

³¹ Aristotle, *The Basic Works of Aristotle* (1941), The Physics, Book II, p. 249.

hippopotamus, and the mole that lives in trees and becomes a primate, through millions of years of gradual change.

Question: And if this conclusion is wrong? How do we reach this conclusion?

How can this conclusion be reached? Because all we are concerned with is what is. Whenever we see what is, we can see that it has adapted to a niche, to the field of life, and we don't need to know why it has happened. All we know is what we see. The whole theory of evolution is based on observation. Chances are if you consider all of the evidence, you will come to the conclusion that this theory is a valid one.

The way thought works is by observing, comparing, and seeing patterns, and then comparing those patterns to other patterns, and then eventually concluding that there is such a continuity in the patterns observed that you can draw some conclusions, even if you don't know exactly all the material, infinitesimal processes in between. You can reach fairly reasonable conclusions. For example, we know from genetics now, but formerly it was known only through fossils, that after the extinction of the dinosaurs these shrews were small mammals that survived and diversified very rapidly to fill numerous niches in nature, and the genetic connection is very direct. Or take the horse for example, the horse was very small, and had definable toes, but there are horse fossils all the way through for fifty million years, which show that horses grew larger, their toes receded, they grew hooves, and their jaws developed for chewing. So there are fossils all along the way, and the genetic pattern is there all along the way, and so it is fairly easy to reach the conclusion that variations have occurred - number one, and - number two, those which have survived have adapted to a particular niche in the food chain and the climate and geography and so on. What could possibly be wrong with that picture?

We can observe that nature develops in ways that serve the purpose of survival. We didn't ask the question what pushes nature to survive. All

Aristotle is saying is that the variations in nature are for a purpose. Darwinian biologists, evolutionary biologists through a hundred and fifty years of comparative, structural biology, embryology, and genetics have in fact come to the conclusion that nature has the ever-present capacity and mission to vary and adapt in response to changes in the environment. Nature, as Darwin said, and the people who study nature tend to ascribe to Nature, capital N, a general purpose and the power to achieve that; the general purpose is "survival".

Whenever conditions change, she changes her structures and behaviors. Also, the conditions change: the environmental conditions are a part of Nature, especially the way we define Nature today. One of the ideas I ended with last time was the idea of Richard Lewontin³² who is a very progressive evolutionist at Harvard, who worked closely with Gould, and who observed that organisms create themselves in relation to the environment and by doing that they create the environment. He says that DNA doesn't do or determine anything; it doesn't replicate itself. DNA is a molecule. By interaction with the proteins in its environment in the cell, it separates; it unwinds at a certain moment in time in the gamete and it divides. That whole mechanism is a function of the cell. This is so with the whole development of the body.

Genes are stimulated at certain times by certain enzymes to turn on and off. They don't turn themselves on and off. We have regulatory genes that enhance and repress, and these are not the only kind. The example of the regulatory gene, for example the hox gene, may determine that you have a head and two fins and a tail, or it may determine that you have a tri-segmented body with wings, or it may determine that you have legs and arms and that your gills have turned into ears. It is the same genes, stimulated in the context of other genes, proteins, chemical influences, and temperature that have evolved in a context.

The internal and external context in which creatures evolve is known as 'constraints'. In response to constraints there is a kind of homeostatic

³²Lewontin (2000), *It ain't necessarily so*, p. 141

pattern that the being realizes: it stays the same through generations. It doesn't vary in essential ways. Homeostasis is a principle of continuity from generation to generation under certain constraints. Every generation doesn't come out like a creature from Star Wars. Things that work tend to be preserved and continue to work. So there are constraints, and patterns of development, replication, and continuity from generation to generation over millions of years.

Even though, we learned, there are minute variations happening all the time. No two individuals are the same. There is a potential for variation there in the genome all the time. What is even more important, as biologists today are saying, is that there is a tremendous potential in the phenotype for variation. The phenotype, what we see, and what we do, the thing that creatures are actually, has a very flexible boundary that is plastic, and the parameters are unknown.

There are laboratory experiments going on right now at Reed College in Oregon for example, with frogs, a breed that reproduces very quickly, where you get a new generation every few weeks. They are examining, under different conditions they create for the frogs, their range of adaptability and flexibility within that species. This is called 'development'. How they develop under different conditions can be very far from the parent. There are many reports and studies on the flexibility of the phenotype.

There is a diagram in Ayala's *Introduction to evolution*³³, a schematic of a regulatory gene, and it will say that this regulatory gene is for lactose inhibition. The gene for producing the enzymes that break down milk in digestion are only stimulated in the presence of milk or lactose. Otherwise, an enzyme is secreted to inhibit that gene. The system doesn't allow the gene to turn on until the lactose is present. There we have an environmental cause. In the development of the embryo and the human being, in the survival of the species, Darwin observed that

³³ Ayala (2008), *Introduction to evolution*. All figures and diagrams have been deleted from the notebook for this course.

the environment has the biggest influence, and is the main influence for change. But, the adaptability range of a species is also quite great. If a species adapts to a change in the environment without any noticeable change in its structure it's because it realized a potential that it wasn't formerly activating. By doing that it becomes a step removed from the parental pattern. As a result of that step of removal, the following generations survive within the new constraints of the environment, and they don't necessarily develop the same potentials that they had developed in the previous environment.

If conditions change again, and they drift a little further into another niche, then gradually the potentials are exploited that were previously unrealized until they become quite far removed from the parent. At the same time, there are coincidental mutations going on in the genome. There are two things working, adaptations, and mutations. There is the accumulation of adaptations to environmental effects, and there is accumulation of minor mutations going on in every generation. Every generation is spontaneously different from every other generation. That is a summary of where we've been already. So, where are we going? We are going in the direction of Philosophy.

Now we have had an introduction to the biology of evolution. The philosophy of evolution is another topic. That is why I have brought in Aristotle, Spencer, and Bergson, and Sri Aurobindo, because what we will be doing now is following another arc of observations and conclusions. All that we have discussed up until now becomes a kind of substratum of accepted scientific information which we can refer to if we need to. I wanted everyone to have that picture of Nature in mind. Last time we concluded with the idea that in all of this diversity of nature that we observe through billions of years and tens of thousands of species, with all of the extinctions and variations and eras of evolution, there are nevertheless certain common patterns we can identify as underlying all of those changes and forms. Especially we know that certain genetic patterns are always there and continuous. So there is a unifying physical substrate, not to mention the quantum

physical substrate below that one. In the world we can observe and study scientifically, the living world, there is a principle of unity working. However diverse things may be in terms of both continuity and structure, among all species there are certain unifying factors, one of which is the genetic structure.

Therefore, scientists like Haeckel can say, 'I'm a monist, my theory is monistic because I perceive there is an underlying unity in all-living forms. And, I hope one day, he says, that human beings will be able to realize in their behaviors and structures of society that unity is also there. We are 'one' on all levels. We are one in our behaviors.' We can observe any species' behaviors and find similarities with our own behaviors, individuals, groups, insects, lizards, if we look closely we will see that we all ingest carbohydrates, we all have heartbeats and nervous systems that transmit chemicals which do basically the same things in our bodies, and consequently our behaviors are very similar. On this chemical level, biochemical level, biogenetic level, there are many similarities.

When we decide that we are going to cut down that tree, our brain releases certain enzymes that process phosphorous in the nerve synapses of our whole body and we pick up the saw and we start sawing. So when the woodpecker decides he is going to scale that tree and eat those insects, his nerve synapses are activated by the same chemicals that activate our nerve synapses. He doesn't draw a blueprint, but he knows what he is doing. His little legs wouldn't carry him up that tree if they didn't get a message from his brain saying that is where the insects are today. Up to a certain point in our behavior, we share an environment with all other living things. We share chemical biochemical processes and patterns of protection, and we send signals to alert our friends about what is changing in the environment.

Are there any conclusions regarding the nature of reality, the meaning of nature, that we can draw from these observations? When we start doing that, we cross the boundary into philosophy, love of knowledge,

understanding, comprehensive understanding of the meaning of things, not just observations and reflections about what it is, and how it works, and empirical patterns. We have the empirical patterns to observe all the time. Now we step back a little bit and reflect on those patterns of empirical observation and we don't have to restrict ourselves to our own because we have Darwin and we have Lewontin, and we have millions and millions of recorded observations that we can refer to. So then we ask ourselves the question, What does it mean? Do those observations have any impact on our judgments about what we do? Think about that for a minute.

In our first session, we read something about philosophy, the Britannica definition: "the critical examination of the grounds for fundamental beliefs, and analysis of the basic concepts employed in their expression", in the expression of those beliefs. What are the basic concepts that we employ and express that reflect our fundamental beliefs? If we look at these concepts that we have been expressing, do we find there anything that is basic to our fundamental beliefs about the meaning of nature, the meaning of life, and how we judge things and decide the course of our actions? And then the question about the philosophy of nature per se, the philosophy of evolution: "it's the exploration of the features of natural reality and their implications for metaphysics, for a theory of reality, for a worldview" – for an understanding of human being, and social norms, and religious beliefs. Can we explore natural phenomena and find there some of the grounds for our theory of knowledge, our theory of man, our theory of right and wrong? This is the subject matter of philosophy.

Let's try and see if we can derive a theory of meaning, by ourselves, from what we observe in nature. Until we try that, we are not going to be doing what is called philosophy. I can certainly understand that someone might not want to try to do philosophy. Philosophy requires quite an extraordinary effort of concentration, and not everyone is cut out for that. In *The Life Divine*, with regard to the transformation of consciousness, Sri Aurobindo uses this phrase. "It requires an

extraordinary effort.” It is not a matter of faith, it is a matter of effort to try to understand the meaning of life on the basis of what we observe. Most people don’t make that effort.

We can observe just from the example that the regulatory gene responds to a change in the environment, or that one species survives better if they change their habit – we can understand that there is involved in that situation a two-fold concept. There is the external influence, and there is the internal drive and adaptation, which responds to the changing environment. We can identify an important principle. Not everything is caused by external forces; everything that happens in nature is not the result of an external force. There is also for each individual entity in each species a configuration that is unique and responds at each moment to its internal and external stimuli.

While we can broadly generalize on the species’ behavior, we know that the species’ behavior is also the result of individual responses, from the moment the individual is conceived, until that individual is performing the normal behaviors of its kind. While it is performing those normal behaviors it is motivating itself. Its motivations are influencing the environment around it which in turn is made up of individuals responding to those stimuli. From this we can arrive at a concept of ‘self’. There is a principle of ‘entity’ in nature. We cannot conclude from this information that all nature is just mechanically determined by shifts in molecular structures and environmental conditions. There are well-defined entities that respond in more or less predictable ways to those environmental influences.

One of the categorical structures that we find when we read through a variety of philosophers is this duality. This duality of things which happen in ways that are not determined by us, and things which happen that are determined by us. Aristotle said Nature is all of that which happens for a purpose, and all of that which happens spontaneously or by chance is something else. There is matter out there which responds to heat and cold and evaporation and hardness and

softness, and without life. But then there is this organization of matter that is alive, and it determines its ends. First of all it determines its ends with respect to its functions. For example, it has the ability to hear, speak, eat, build nests, and then it has its relations with other entities, so that it determines certain patterns in the group. It is also subject to environmental changes which it does not determine and which are not determinable, which are the results of sunspots that suddenly heat up things and the field of transmission is affected.

For us, we can interpret any pattern that occurs, and assign to it a meaning. The meaning we assign to it may be the result of an intuitive, direct grasp of its actual meaning. Or, we may be assigning to it a meaning we have learned, already assigned to it by others, or we may assign to it a meaning that is based on a complete delusional state of mind. Paranoia is a very real experience for the person experiencing it. That ray of light that is aiming at my brain right now, that I'm afraid may affect you, is pretty real and it really does mean that.

So my question was simply, and I supplied a partial answer to it, when we observe the patterns in Nature the way that Aristotle observed them, or Darwin observed them, and we put together in our understanding processes, the information we have access to, can we determine meaning that we believe is important for our own decisions, for understanding ourselves and our society, for a true theory of life? The meaning of life. The meaning of the structures of our experience. When we start to do that, it's not necessary for us to recall the principles of phenomenology, or the principles of Vedic mythology.

We can think purely about this information that we have. We can reflect on it. We can draw conclusions from it. Then we start the process of philosophy. Then we can ask, if we can't really solve the problem that occurs to us, then we can ask, would it help us solve this problem if we applied to it some of the principles that we learned from linguistics about language? Can we supply some information that we learned from economics? Sri Aurobindo began to reflect on the theory of evolution

(around 1920) and I've selected a few of his observations (see Appendix 2, [Sri Aurobindo and Darwinism](#)). This first statement goes along the line which I just suggested, "The idea of the struggle for life tends to be modified; this modification is a concession to reviving moralistic tendencies, not struggle for life only. The real law, it is now suggested, is rather mutual help, or at least mutual accommodation. Struggle exists, mutual destruction exists but as a subordinate movement, a red minor chord, and only becomes acute when a movement of mutual accommodation fails and elbow room has to be made for a fresh attempt, a new combination." This was taken from his article 'Evolution'.

One of the directions for reflection you could take asking this question is what do the patterns of variation and adaptation that we have explored so far tell us with regard to interspecies dependency, or extra species struggle and conflict, or extra species interdependency? Many biologists today, like Lewontin and Gould, have spent a lot of time studying interspecies cooperation. Even Dawkins has written a book called *The Extended Phenotype*³⁴, in which he describes an elaborate theory that the behavior of a species affects the biochemical behavior and structure of other species in the environment. When those species change, we also change, and at a vast level the world is our body.

Cooperation is about interdependence. There appears to be in life not only an underlying genetic unity but there is a unity on the field of food organization, procreation, habitat management, and so all species are in the process of building the habitat for all other species. The Greeks would have said that the basic principle behind all of this is Love. Then one would ask, What about the tiger eating the deer, is that love? Well, one might say, Yes. On the physical level, there is a principle of unity and interdependence among species, and on the vital level there are many structures that indicate unity and interdependence. What does it take to move to the next level? What observations can we make on the uniquely human, intellectual, mental sphere, regarding this idea of fundamental unity and interdependence? What can we say about the

³⁴ Ibid, fn. 10

nature of "mind" on the basis of these empirical observations?

Lecture 6

Bergson and the Limits of Rational Mind

In thinking about the philosophy of evolution, it is important for us to recognize that in the 20th Century soon after Darwin's theory was well digested, there started to be formulated theories of "human" evolution. Human evolution is primarily the evolution of the mind, mental evolution. Then the fields of anthropology and psychology really exploded. We now need to take up this thinking about the evolution of consciousness, because the human being hasn't changed much in forty thousand years according to most physicalist biological theories. The human being is changing very gradually like everything else, and the reality of life is *constant gradual change*. But the last major changes in the structure of the human being seem to have taken place over a hundred thousand years ago, when the skeletal shape and musculature developed the capacity for speech. And these advances may well be reaching the limits of their viability.

Darwin (or Darwinian thinking) calls this process of correlated development co-evolution or the co-adaptation of parts: when one part changes the other changes automatically and not necessarily as an adaptation, but because of genetic linkages. And so, the upright walking of the human being and the new shape of the head, neck, and jaw that occurred in early humans corresponded to the enlarging of the brain cavity and to the development of the vocal apparatus. All of these changes of the structure of the human being seem to be related and suited the common development of what we know now as the human being. Language development happened at about that time as well. We are speaking about the last two hundred thousand years basically, and that movement culminated about forty thousand years ago with *homo sapiens sapiens*. At that point the apparatus of speech, the large brain, the flexible upright spine had taken place. Two hundred thousand years is a pretty good time span in evolutionary terms - a lot of things can change.

If you think about the lion and the cow, lion-ness and cow-ness and giraffe-ness, these guys came along with us relatively recently, during the later mammalian evolution. They are all pretty distinct as well. All of us guys that evolved in the last fifty million years, lets say, have a lot of similarities and yet each is quite distinct. It takes a good amount of time for a complex species to evolve. Once it does, it is pretty unique and it has carved out a niche for itself which lasts a pretty long time. Lion-ness and cow-ness also happen to work pretty well together. One eats the grass and the other eats the grass eater. Their numbers, sizes, metabolism and habitats are all nicely balanced so they are able to live together in a kind of happy balance for hundreds of thousands of years.

When this kind of evolutionary thinking had been well digested around the first decade of the 20th Century, the human beings who were thinking about these things realized that our history and culture and way of thinking really distinguish us quite radically from the other mammal species, though in many ways we are the same. I have invited you in this course to spend some contemplative, quality time, relating to some lower level species who are related to us and in whom we can observe many of our traits.

In many ways we are closely connected to that phyletic order of things to which we belong – vertebrate animals, but one of the key movements in evolutionary theory and the philosophy of evolution which took place in the first decade of the 20th Century was the reflection upon the abstractness and disassociation that our knowledge creates between us and those others with whom we are closely connected. All of this knowledge that we have of species and classes and patterns of adaptation and variation and connectedness, these concepts are in themselves adequate for a certain kind of knowing, and at the same time there is another way of knowing nature that we can sometimes experience, in which we actually know the entity itself in a much more complex way. We've used the example of the dog or the horse whose emotions we become sensitive to and whose intelligence we begin to appreciate. We are amazed sometimes by the uniqueness

and wonder that are embodied in another species, not to mention in other members of our own species whose uniqueness is unbounded, whose differences and therefore uniqueness is infinite. But here we come up against a limitation in our thinking, which tends to understand wholes. This kind of reflection leads to a certain kind of epistemological understanding. We come to realize that we think in terms of stable eternal unchanging entities: the lion, the cow, human psychology, this pattern and that pattern. We make just enough observations to be able to generalize, and then we “know” something.

That kind of knowledge enables us to accomplish certain things, no doubt. It enables us to breed better strains of cows and rice. It enables us to recognize and treat certain kinds of diseases and abnormalities. It enables us to understand a phenomenon like language, in this way, or a phenomenon like sight in this way, scientifically. We know that the faculty of sight has evolved independently in forty different phyletic lines. Sight is omnipresent in the animal world, from the paramecium to the human being sight is omnipresent. In human beings, language is omnipresent. All human beings, whatever their cultural origins and time period in history, have developed this most extraordinary thing called language, which we can understand and describe incrementally in the way Vladimir has been describing it to us in his course. This linguistic science is very thorough and true.

But, compare that understanding with the phenomenon of language itself, this phenomenon that occurs universally in the human species that enables communication to be understood, to work. But not only is it its utility, it's *what it is* that is so remarkable. There is nothing else like language. It is a power of consciousness. There is of course also nothing else like a giraffe or a lion. The evolution of these entities has undoubtedly followed a certain line of process, so natural selection works incredibly well, and it also goes on in language development. But language is so extraordinarily different from anything we know of that's happening in the structures of the body, the cells of the body, in the neurons, it's like a different world. Our mind sails along on this track of

generalization, and so we create a science of language just like we create a science of mammals and plants and other classes and orders of things, and we use them effectively for our purposes - these sciences that we create. And we forget the extraordinary uniqueness of language itself. Something strange happens. We lose contact with the existential quality of the thing itself. It becomes reduced to formulas, and the mental formulations take on the quality of reality. Then we believe that we are actually speaking about language, or about the evolution of species.

This awareness struck philosophers first, around 1910. And I have just recently discovered that probably the most germinal philosophical discovery of this sort took place in the mind of a man named Henri Bergson. From his ideas grew a wide range of explorations of consciousness. Many fields developed along the lines that he began to explore. Not that he can be given credit for all those things, but there was a mind there that penetrated this barrier of rational adequacy that had evolved over the past two thousand, or 50,000 years, or so, quite happily. He realized what was happening; he analyzed it and stated it and attempted to move beyond the limitations of the rational scientific way of speaking and thinking.

I gave you a handout taken from the last section of the last chapter of his book called *Creative Evolution* (1907/1911). I strongly encourage you to read that excerpt. Even though the language is philosophical and based upon an understanding of four to five hundred years of philosophical thought, which is a continuous stream of thinking from Descartes to Hume, to Kant, Shelling, Nietzsche, Husserl, and the whole western philosophical development is in the background of what he says. But he just picks out certain key ideas in this development of thought in order to illustrate their limitations.

He notices, with remarkable originality, that the fundamental problem of the rational mind, in coming to terms with the world in which it is grounded, is a certain perception of time. He traces this idea all the way

back to the beginnings of philosophy and in that time, in the beginnings of traditional philosophy, there are many similarities between eastern and western philosophical thinking, actually. He shows in a very systematic way how our tendency, the rational mind's tendency, is to think like film thinks. We observe a sequence of events and we capture a certain frame, a certain image which represents to us that process that we observe, and we hold on to that and consider that unit the thing, the reality.

You can see this especially in Aristotle, where the whole philosophy of time and space, and evolution and psychology, everything is treated in terms of two principles, form and matter. The form is the thing we know, and matter is the thing that is changing all the time and making the forms. The Greeks determined that the form is the essence. So when we know about, let's say Greek civilization, – the period of Plato, Aristotle, Alexander the Great, and so on – we know that Plato represents a certain amazing compendium of philosophical thinking that has influenced our civilization every day, and year, during every epoch. We know that Alexander began this movement of empire and we are still living with it and its effects, moving through several civilizations. This knowledge is wonderful.

Now, what do we really know about Alexander's conquests and the spirit with which he led and organized, and the impact that spirit and power had on succeeding generations in terms of agriculture, language, philosophy, or anything else? What do we really know about any of that which happened 2500 years ago? We don't really know very much about it. We have a capacity for generalizing. It serves us well for certain purposes. But it doesn't give us real, intimate knowledge of the temporal movement. It gives us a cinematic-graphical frame, which represents the temporal movement. We are engaged 'now' in time. This time-space continuum that brings us back here every week and has us listening right now and speaking, this energy happening right now that is formulating a certain view of history, and a certain philosophy of understanding, an epistemology, this understanding is taking place in a

specific space-time continuum, and you are going to capture a few ideas and phrases and take them with you. When you read Bergson you will see the same ideas and phrases that will reinforce a certain understanding grounded in a certain kind of time consciousness, a kind of temporal consciousness that we have. Our consciousness is limited by a certain way of understanding time. We find it very easy and convenient to measure time in an artificial way, in minutes, hours and days and we think things are happening in those times and frames, but actually these things continue to happen all the time. I continue thinking about these things and it's one continuous thinking process that I have tuned into with the help of Bergson and Nietzsche, and Spinoza, and Aristotle. Bergson said, and he is known mainly for this, that the way reality actually unfolds, the reality of the world, is that each of these things we think about in terms of ideas and forms takes place in a kind of time that endures. It is an enduring, which actually happens. This that we are doing now has a duration; the kind of understanding we will eventually reach has a duration. The kind of energy that was present when the species first began that we are most familiar with, the human, the lion, etc. evolved over fifty million years, during a specific span of time. It has had a specific duration. It has endured.

The picture that Darwin has shown us is of a descent of species that has taken place over a time period of three billion years, and every moment of that time is related to every other moment. The genetic development of species in their vast interconnectedness could only happen as a result of exactly the amount of time that it took for those things to happen. (Sri Aurobindo in *Savitri* speaks about time as the will of the Divine.) Bergson asks us to think about the possibility of knowing things directly in terms of their own duration: to know things by putting ourselves in the stream of actual time. As an experiment, we can put ourselves in relation to a person or animal, - not for the sake of repeating and reproducing the common understanding that we have of each other already, the "knowledge" that we have, - and put ourselves in relation to a dog, a cat or a bird or a forest, with the idea that we might enter into the stream of time which is the duration of that entity. Bergson says

many amazing things about the possibility of such knowing. He calls it "intuition", and he says that there must be a physical intuition, and a vital intuition, and a mental intuition, and a supra-conscious intuition. If we could enter into the latter we could replace our rational mode of knowing with a knowing of being. Then we would forget about our grand reified images of how things are and we would know exactly how things are in themselves. He shows how Kant and Spinoza were close to this discovery but missed the track just a bit. He explains very clearly how Plato and Aristotle came to their philosophy of forms, which makes good sense and leads to a metaphysical way of understanding things, but they set us out on a long road that we now must leave behind.

He says, "On the flux itself of duration science neither would nor could lay hold."³⁵ Scientific thinking cannot lay hold of the actual flux of duration. It requires another knowing, one that is natural to us. We are grounded in the physical, the vital, and the mental, so we can enter into that way of knowing naturally. We will begin to see many similarities and connections between the ideas of Sri Aurobindo, Jean Gebser and Martin Heidegger with regard to this notion of intuition and time-consciousness. It is extraordinary how many streams of human advancement grew out of these fundamental perceptions. So, Bergson says,

"This second kind of knowledge would have set the cinematographical method aside. It would have called upon the mind to renounce its most cherished habits. It is within becoming that it would have transported us by an effort of sympathy. We should no longer be asking where a moving body will be, what shape a system will take, through what state a change will pass at a given moment, the moments of time which are only arrests of our attention..."³⁶ Time itself doesn't stop, we don't stop changing, change doesn't stop happening, just because we hit upon an idea about something at a certain point. "...the moments of time would

³⁵ Bergson (1911, 1st Eng. Ed.) *Creative Evolution*, p. 342

³⁶ *Ibid*, p. 342

no longer exist." The moments of time would no longer exist, - time doesn't have moments, we have moments.

So, Gebser, in the forties writes his book, called *The Ever Present Origin* (1950), the whole vision of which he attributed to Sri Aurobindo, subsequently, when he had read his work and come to India and the Ashram. He has written a psychological interpretation of the evolution of human consciousness, a psychological interpretation based upon time perception. He understands that the integral consciousness, the new mutation, will be characterized primarily by a change in the way that we perceive time. He shows how the whole 20th Century in its art, science, philosophy, and psychology is based upon a shifting perception of time. Bergson says, then,

"It is the flow of time, it is the very flux of the real that we should be trying to follow. The first kind of knowledge, (the rational, scientific) has the advantage of enabling us to foresee the future and of making us in some measure masters of events. In return, it retains of the moving reality only eventual immobilities, that is to say views taken of it by our mind. The other knowledge, if it is possible, is practically useless. It will not extend our empire over nature. It will even go against certain natural aspirations of the intellect. But if it succeeds, it is reality itself that it will hold in a firm and final embrace. Not only may we thus complete the intellect and its knowledge of matter by accustoming it to install itself within the moving, but by developing also another faculty, complimentary to the intellect, we may open a perspective on the other half of the real. For as soon as we are confronted with true duration we see that it means creation. If that which is being unmade endures, it can only be because it is inseparably bound to what is making itself."³⁷

(And then, Rupert Sheldrake writes a book in 1995 called *The Presence of the Past*, a book about biological evolution. Sheldrake has given a very interesting synthesis of philosophy and biology in this book, very similar to what I'm trying to do here.)

³⁷ Ibid, p. 343

“Thus will appear the necessity of the continual growth of the universe. I should say, of a life of the real. And thus will be seen in a new light, the life which we find on the surface of our planet, a life directed the same way as that of the universe, an inverse of materiality. To intellect in short there will be added intuition.”³⁸

Now, there are a couple of things for us to notice. As a result of this shift which began around the first decade of the 20th Century there grew up the whole field of anthropology and the study of mind (and human culture) as an evolutionary phenomenon. In Gebser, for example, we get the idea that there was a period of human evolution characterized by a kind of mind he calls the archaic, and then a kind of mind he calls the magical, and then the mythical, the rational, and ultimately the emergence of a new kind of mind that he calls the integral (see Appendix 3, Ages of Man in the [Time-table of evolution](#)). If we read *The Life Divine*, we see Sri Aurobindo speaking about exactly the same stages of the evolution of mind, especially in the chapter called ‘Man and the Evolution’. Then we have another stream of thinking called phenomenology, which is based upon the idea for which Heidegger deserves the credit primarily, in his book titled *Being and Time*, of the necessity of giving up the way of thinking that is logical and rational and learning to ‘think being’ as such. This is a shift from epistemology to ontology, from the philosophy of how we know to the philosophy of ‘what is’.

We will see that in the 20th Century there is one major movement of philosophy that represents this shift from epistemology, which characterized the philosophy of the 17th, and 18th, and 19th Century, to ontology: “what is”, not what do we think, know, understand, why do we think the way we do, what conditions our way of thinking but, what **is**, what is reality. We can know; it is not true that we have to impose an interpretation on everything and call that “knowledge”. We can actually know things directly, wholly, holistically, so the whole movement of psychology in the 20th Century and the discovery of the unconscious

³⁸ Ibid, p. 343

and its relationship to the conscious and to the superconscious is about coming to terms with our groundedness in all the levels of reality and getting out of this idea of being on the surface of everything and knowing how to manipulate it. All of these developments in 20th Century thought, in human thinking and being stem from certain fundamental perceptions, a certain grasp. Heidegger had a certain grasp of reality that enabled him to shake the foundations of western philosophy to the root. Sri Aurobindo had a certain grasp of reality that enabled him to push the evolution of consciousness in another direction. Freud had a grasp of reality that enabled him to overturn the scales of values and judgments and the understanding of what the human being is. Just to emphasize the extraordinary quality of Bergson's thinking, I took out a few selections close to the end of his book.

His thinking leading up to these observations is quite detailed and interesting to follow and then he comes to: "If our analysis is correct, it is consciousness, or rather supra-consciousness, that is at the origin of life. Consciousness, or supra-consciousness, is the name for the rocket whose extinguished fragments fall back as matter; consciousness, again, is the name for that which subsists of the rocket itself, passing through the fragments and lighting them up into organisms. But this consciousness, which is a *need of creation*, is made manifest to itself only where creation is possible."³⁹

"The whole history of life until man has been that of the effort of consciousness to raise matter, and of the more or less complete overwhelming of consciousness by the matter which has fallen back on it. The enterprise was paradoxical, if, indeed, we may speak here otherwise than by metaphor, of enterprise and of effort. It was to create with matter, which is necessity itself, an instrument of freedom, to make a machine which should triumph over mechanism, and to use the determinism of nature to pass through the meshes of the net which this

³⁹ Ibid, p. 261

very determinism had spread."⁴⁰

"Everywhere but in man, consciousness has had to come to a stand; in man alone it has kept on its way. ...Man, then, continues the vital movement indefinitely, although he does not draw along with him all that life carries in itself. On other lines of evolution there have traveled other tendencies which life implied, and of which, since everything interpenetrates, man has, doubtless, kept something, but of which he has kept only very little. It is as if a vague and formless being, whom we may call, as we will, man or superman, had sought to realize himself, and had succeeded only by abandoning a part of himself on the way. The losses are represented by the rest of the animal world, and even by the vegetable world, at least in what these have that is positive and above the accidents of evolution."⁴¹

This is early 20th Century, post Nietzschean, scientific, metaphysical, theological inspiration catching a glimpse of the totality. Sri Aurobindo takes all of these ideas to their higher range, but they are the same ideas. (Sri Aurobindo goes beyond this intuitive inspiration of Bergson, in fact, and shows us that intuition is merely the lower rung of a more powerful Supramental plane of consciousness.) Bergson's version: "These fleeting intuitions, which light up their object only at distant intervals, philosophy ought to seize, first to sustain them, then to expand them and so unite them together. The more it advances in this work, the more will it perceive that intuition is mind itself, and in a certain sense, life itself: the intellect has been cut out of it by a process resembling that which has generated matter. Thus is revealed the unity of the spiritual life. We recognize it only when we place ourselves in intuition in order to go from intuition to the intellect, for from the intellect we shall never pass to intuition. ...Philosophy introduces us thus into the spiritual life. And it shows us at the same time the relation of the life of the spirit to that of the body. ...Life as a whole, from the

⁴⁰ Ibid, p. 264

⁴¹ Ibid, p. 266

initial impulsion that thrust it into the world, will appear as a wave which rises, and which is opposed by the descending movement of matter."⁴²

In order to appreciate this for what it is we have to step out of our customary framework of metaphors in the Sri Aurobindo School of thinking; we have to step out a little bit because we find that in all of these philosophers of evolution there is an idea of ascent and descent, all of them have it, from Kant and Darwin up to the present time. But, the way they formulate their systems is unique to each of them. This idea of matter descending and consciousness rising is merely the metaphor that Bergson grasped in order to convey his vision that spirit and matter are co-evolving. And his vision was remarkable, especially in the context of Sri Aurobindo's vision.

"On the other hand, this rising wave is consciousness, and, like all consciousness, it includes potentialities without number, which interpenetrate and to which consequently neither the category of unity nor that of multiplicity is appropriate, made as they both are for inert matter. Our concept of unity and of multiplicity is based upon a certain kind of physical consciousness. The matter that it bears along with it, and in the interstices in which it inserts itself, alone can divide it, this matter alone can divide consciousness into distinct individualities."⁴³

This concept of individualization is what characterizes this stage of human evolution whether you think of it in terms of Sri Aurobindo's philosophy, or Jung's, or Gebser's, etc. It is there in the idea that species become more and more individualized; the more complex they become, the more conscious and individualized they become in relation to other species. "Finally, consciousness is essentially free, it is "freedom itself". But it cannot pass through matter without settling on it, without adapting itself to it." Later on we find the idea that it is actually already in it from the first. But then the idea of consciousness emerging in

⁴² Ibid, p. 268-269

⁴³ Ibid, p. 269

matter can also easily be seen as a relationship between necessity and freedom, resulting in form and change and the particular coincidence of form and change: matter and spirit equals form and change.

"Finally, consciousness is essentially free; it is freedom itself; but it cannot pass through matter without settling on it, without adapting itself to it. All the living hold together and all yield to the same tremendous push."⁴⁴

Now, we must have this question, when we look back over evolution and we realize that we cannot understand anything really, but what we do understand is that it has moved continuously for three billion years and is still moving, even though it appears that it isn't moving most of the time. Yet, and because we can look back at the genetic record and the geological and fossil record, almost to the day, we know that it is moving. We have to ask ourselves, What is moving? It never stays put. 99.9% of species that have ever existed are extinct today. Many more that exist today are becoming extinct daily, and our own extinction is eminent, but evolution just keeps moving. So we have to ask the question, What is it that is moving? Then, our friend Bergson takes the big leap.

"All the living hold together, and all yield to the same tremendous push. The animal takes its stand on the plant, man bestrides animality, and the whole of humanity, in space and in time, is one immense army galloping beside and before and behind each of us in an overwhelming charge able to beat down every resistance and clear the most formidable obstacles, perhaps even death."⁴⁵

There it is: 1907.

⁴⁴ Ibid, p. 270

⁴⁵ Ibid, p. 271

Perhaps we can't understand exactly what he means when he says that we can't move from the rational to the intuitive consciousness. But that's not important. It's only when we engage with a philosopher intimately that we can grasp what he means. Every philosopher means something quite unique. This is the wonder of sight, and of philosophy, and of language. This Creativity that comes to a level of maximization of potential: a work of art, a composition, a work of philosophy, a poem... has a meaning and a uniqueness which is the product of a consciousness that is essentially itself. We can speculate, but we can also move into Sri Aurobindo's understanding. In Sri Aurobindo's psychology the intuitive mind is not something that happens inside our head at all; it is a plane of reality like life and matter, and that plane of reality, that intuitive plane is a sub-plane of the Overmind, and reality is condensing itself into more and more individualized units from that plane of pure principle where everything is known by everything else. Obviously you cannot move from rational mind to that without a big evolutionary change. I think the hint that Bergson, Gebser, Heidegger caught, and what Sri Aurobindo really knew, is that a change of consciousness is what's required, and it can't happen without silencing *completely* the mind. That "other consciousness" is not mental.

Human evolution means: Moving beyond the human. Philosophy's main project is the study of what it means to be a human being: the meaning of being human, especially mental, rational, conscious being. Philosophy has understood this well. Then Heidegger popped out a tract in the 50s called 'The End of Philosophy' because he knew that this new consciousness, this direct consciousness of being itself, is also an energy of being, it is another way of being that doesn't need rationality. Rationality is needed to understand its necessity. But then, it has to abdicate. Sri Aurobindo and the Mother both use this term quite liberally, abdication of the mind. It can only abdicate when it is really poised and knows That for which it abdicates. In the chapter called 'Man and the Evolution', on pages written in 1940, Sri Aurobindo says there is a double evolution going on. There is the evolution in the three worlds, mind, life, and body, and there is the spiritual evolution going on. For

the evolution of the mind, life, and body, it is essential to take the evolution of the mind to its absolute limit. While at the same time the spiritual evolution has always been going on within the three-world complex, and it can step out at any point and realize the Absolute, the spiritual truth. But, for it to manifest itself in the threefold evolution it can't do that. It can only temporarily step out in order to get some leverage. Then it is back in; it is an in and out, up and down sort of process, the double evolutionary path.

He carries this way of thinking into the road. Bergson is catching a glimpse of the path and Sri Aurobindo is going full blast on the road, especially in 1940. He added fourteen new chapters to *The Life Divine* in 1939-40 and revised a lot of the rest of it. In 1944 he was still writing in the margins. The fact that his book was published in the middle of the forties in India and New York and by the fifties was pretty well known around the world is another amazing phenomenon in the life of Sri Aurobindo. If you notice, in the last fourteen chapters, many of them have the word evolution in the titles. This is the theme that he is pumping with every ounce of energy he was able to bring down from that higher consciousness. So were Whitehead, Bergson, and Gebser; there were many along the way around the forties, fifties, and sixties, and Konrad Lorenz in 1970 tuned into the universal thought process of evolution. Evolution is now thinking. Sri Aurobindo said that evolution itself would evolve. Evolution as the Huxleys' said in 1890-1910, is now mental, it is not biological anymore. The biological evolution is just pulled along; where it is really happening is in the mind, in the culture, in the systems. Sri Aurobindo says the same thing. Once the spiritual evolution takes place, he says, then all the rest can be elevated to another type. And yes, there is a necessity, he says, to step out completely from the rational pattern and enter into the silence and emptiness, but with a firm hold on the flame. It is not the old stepping out into the ultimate emptiness. So that was his yogic movement based upon this understanding, taken to its limits.

Lecture 7

From empiricism to intuition and the evolution of mind

The whole scope of the development of the theory (of evolution) shows for one thing that the analytical deductive mind observes so many instances of change by just observing the fossil record, nature, and embryology, more and more observing in deep time when things have occurred and what occurred. Putting the blocks in place the mind spontaneously notices that there is a temporal continuity over a very long period of time with change always related, always new, but always related to the past.

It is impossible not to arrive at a theory of 'continuity of change', which is known as evolution. There is no mystery about where that theory comes from. It is just a matter of observation. The attempt to utilize that, to draw from that something which gives meaning to being human and civilization, is interesting: the fact that after noticing this process and not being able to explain it, we have a theory of evolution without really knowing what it is. This is the big question that we asked last time: What is it that is evolving?, because everything changes all the time. Nothing is left from centuries or millennia past, and yet life goes on.

Last time we focused on Bergson, who grasped a lot of things in a very original and immediate way. His ideas became developed by many different strains of thought. He grasped the main questions and criticized the main way of knowing. He postulated how knowing has to evolve if we are going to really be fulfilled and understand, and contribute to the process. There has to be a change, and the direction of that change was intuited. He had a strong intuition of the direction of that change. It agrees perfectly with Sri Aurobindo's intuition that the rational mind which has come up with this theory has to abdicate. There has to emerge a consciousness that is one with Nature itself, and knows directly. That perhaps is the purpose of the whole thing from the beginning.

That consciousness, that supra-intellectual higher intuitive consciousness he suggests is Being. Being is That. The whole process of time is for 'Being' to become what it is in Life. With that ignition, something happened then in 1907. It's very clear, the spark of realization of the meaning of evolution.

It seems that Sri Aurobindo's philosophy of stepping out and allowing something else to come in, also comes from that spark. There are many other fields of development which come from that spark. The theories were the products of a consciousness also. The theories were new and based upon another conception of time. There was a shift in the conception of time and space. This is what Bergson perceived as a necessity, a shift in the perception of time, because time is not what we think it is. It is not divided up into moments. He said this new way of knowing would have nothing to do with the moments of time. The moments of time would cease to exist because the moments of time are in us, not in time itself.

The big question I would ask is, Is it possible... this consciousness of Being-itself, of duration, of Being in life, of Being in matter, and realizing that consciousness is not different from that - consciousness is its creativity. That is what Schrödinger was also saying in 1940.⁴⁶ There is a way of perceiving existence by identity, in which existence itself is created. That creativity is evolution, and consciousness. It is there all the way along from the beginning. To perceive it, and for us to become conscious of it, implies that it is already a part of nature. Consciousness is already the reality of nature.

I believe that is what Sri Aurobindo says. We in our mental development are perceiving That, but we don't feel fully part of it. We feel like we are outside making a slop of it, as one person said. We are uncomfortable with our "mental" theorizing about that. We perceive that it is more than our mental is making of it. Our mind is making something of it, - that gives us a hint of what it is, but we continue to experience this

⁴⁶Schrödinger (1944, 1967 Ed.), *What Is Life?*

“mind thing” as separate from the flow, the duration, the energy. That is a question that has been perplexing philosophy for a few hundred years.

What is this mind, how does it work, and how does it happen to Be, in this whole complex of matter, life, and Spirit? What is its role? How does it work? Then philosophy begins to do what Bergson, Heidegger, and Sri Aurobindo did, and it points out that this rational mind is not telling us the truth. It is telling us ideas, giving us frames which we abstract from processes. Then we have the frame, which may or may not be the reality. Then the big question that philosophy arrives at is, Can we get beyond the limitations of mind, or are we stuck with it - to make the best of it?

What evidence do we find to support the ideas of the past evolution of mind and possibly a future evolution beyond mind? What evidence do we find that mind has evolved at all? If it has evolved at all, will it evolve further? When we ask that question, I’m thinking we are aware that human civilization is ‘mind directed life’. What makes the difference between the human society, and the animal or insect society? The work of Gebser shows that there are stages of development of mind, historical stages. There is the Archaic, Magical, Mythical, and the Rational, and with the breaking through of the time barrier there becomes possible an Integral consciousness (see Appendix 3, Ages of Man in the [Time-table of evolution](#)).⁴⁷ This is in very close agreement with Sri Aurobindo.⁴⁸

If we look back at mind in its beginnings we can see to some extent what characterized mind from the beginning, and how it has evolved with respect to society. Societies have evolved through laws, organization, religion, and art. Human societies really are mental societies. They are not insect or animal societies and vegetable societies. They are mental societies. We can ask, What is it that is specially human

⁴⁷ Gebser (1949/53, Eng. Ed. 1985), *The Ever-Present Origin*

⁴⁸ Sri Aurobindo (1970 Ed.), *The Human Cycle*

and how has it evolved? Has it evolved, or is it the same as it was to start with? We have to allow ourselves to include in our conception of ourselves what we've been doing for the past fifty thousand years. What is it that human beings do that characterizes us, in the whole picture of evolving life? What is essentially us, the human being?

When human societies started to regulate, economically, the flow of food, and started to regulate behavior, so that the individual doesn't just procure its food, and build its nest, and take care of its young, but regulations are made which require everyone to control their own urges for the sake of accumulating and providing for the whole. So that there is no longer just a vital drive to fulfill the survival of the species need, but there begins to emerge law and order, principles of the organization of life that not only get communicated but are identified with and shared, and recognized, and valued. There emerge in the human species values that control behavior, which becomes voluntarily controlled because of an understanding of values. There are all kinds of spin-offs from that, - philosophies, mythologies, religions, and various institutions that reinforce those values. The thing that strikes me as being the most characteristically human function is that our societies have been organized from a very early time according to principles which require the individual to control her behavior for the sake of the larger collectivity.

Can we live together without law and order? Of course not.

99% of all species are extinct. On the biological level animals continue their species through vital behavior that is augmented no doubt by mind. Animals have abilities to make judgments and avoid dangers and so on, but they apparently are not as concerned as we are about controlling for the sake of survival. We seem to want to have a kind of insured longevity. We want to insure that our food producing and distributing process goes on from generation to generation without a break. We seem to want to insure that our offspring learn, not only how to survive but how to perform increasingly specialized activities in

efficient, refined, productive ways that are sustainable. Our society is made of highly developed, systematic procedures for the purpose of allowing our species to thrive. Whereas, on the vital level, species manage to continue to survive just through their struggle, procreation, and eating whatever is there in the niche. When the niche is no longer there, then they either evolve or become extinct.

So it seems that the human being's instinct to survive has pushed it into the stream of organizing "for the sake of". Every civilization, even though they're very different in their arts, crafts, languages, organizational structures and so on, they all seem characterized by the principle of the control of behavior for the sake of organizing sustenance.

Now, as a result of the success of humans, all the niches are being appropriated for the specie's survival. The human species now is not even willing to sacrifice members who are not productive. We save everybody. We are also willing to control our procreation, to a point, with birth control; even though this is pretty ubiquitous, we don't seem to mind appropriating the environment of all the other species for our sake. In order to do that we regulate our own productivity, and we sacrifice for those who are not productive. There is this ethical stance, the human mind seems to be characterized by this ethical behavior, that we want to heal everyone who is sick and prevent them from dying if possible. We want to feed everyone. We want to do that, although there are aberrations that occur and we can tolerate certain levels of poverty. But that level of poverty disturbs us and we know that if we alleviate it and make it more vital and dynamic, everyone benefits from that.

I just want to reinforce the idea that this idea of good and bad in the ethical mind is somehow the essential differentiating factor. There are many indications of that. I would propose that, a proposition we might pursue further, is that in fact what distinguishes the human species from other species is the ethical mind. The idea that we can sacrifice deliberately some of our drives for the sake of achieving our success,

and that we can impose upon a whole society the necessity of sacrificing some drives in order to achieve success in some other areas. The problem is we are not always right about it, but we are right enough that our civilization has continued to evolve in comparison with other species. We have not been around that long. Within ten thousand years we have managed to over-populate the earth and suppress all other species, and maximize our gains from all the resources that are available. We have outgrown nature.

We also have come to a critical point of asking ourselves, What do we need to change about our behavior now that we see it's not viable? We speak about global society, global welfare, we somehow have gone beyond nationalism, we've gone beyond tribalism, we are moving toward globalism because we see that our survival depends upon an adjustment of the whole to all of its parts. The mind is functioning ethically now with respect to the whole, not just with respect to the tribe and the community, city, and nation. The big question is whether it can manage the whole because it never got rid of all those other drives. Those vital drives the animal has are still there. The physical needs of the genetic material to propagate itself are still there. There is a limit to what we are willing to sacrifice. But the idea of sacrifice has been there it seems, essentially since the human species began its course.

If we ask the question, What is consciousness?, obviously we ask that question because we perceive the necessity of an adjustment between ourselves, nature, and society that leads us to will some controls on our behavior and to direct our behavior towards certain ends from an abstract point of view. We don't just charge out there, we think about it and we think about why we are going to do it. Our organism is giving us feedback in terms of understanding images, possibilities, right and wrong, and judgment. Judgment is ethical mind. Rationality seems to be a by-product of that ethical mind. Inspiration and intuition seem to be that ethical mind reaching for a larger picture and a more direct effective power. Somewhere in us, is this *pranic* ascending movement to know more, to do better, to make the sacrifices, whether of ourselves or

of someone else or something else, in a way that ensures not only the success of the individual but the success of the group. And each member of the group is making the same judgments, so they are able to agree at a certain point that it is this, this is the way 'we' have to go. There is a group mind that is ethical. It is not just the individual mind that is ethical, it is the group mind. In every species there is a group mind; in birds there is a group mind obviously working in their migrations and in penguins cooperating. The group mind is not just working in us. But, the group mind, behaving ethically, seems to be our unique, essential, qualifying difference. If you think about the appreciation of beauty, the love of beauty and harmony in human societies, and how that has manifested, how part of the human being's survival grasps the importance of a qualitative element, – excellence, beauty, and harmony – the Good.

It seems that religion has been one of the primary evidences, expressions of this qualitative aspect of the ethical mind and it comes through people who are inspired, who have a cosmic consciousness, and who truly impart to others a sense of benevolence, a spiritual sense. That might be the root of the ethical mind. But in the whole picture, it seems like there are other aspects of it that dominate like organization and accumulation, and the mastery of technique, so that what was a tool before now becomes a satellite radar equipment that allows us to drop a bomb on Iraq sitting in Washington. This is a big tool.

*Comment on warfare, gender and leadership...*⁴⁹

Even Schrödinger believed it might be necessary for human beings to sacrifice and suppress some of their attainments for the sake of another evolution, not just for the human. It seems with Sri Aurobindo, and going all the way back to Bergson, that there is this idea in the human that maybe it can sacrifice for something beyond itself. That is radical

⁴⁹ Lecture 7 on The Philosophy of Evolution (2008 audio file), <http://www.universityofhumanunity.org/newsite/audios.php> (Please note: the original audio versions of all of the lectures in this course are available on-line.)

ethical behavior.

We can also explore what characterizes the different levels of mind. Is it important for us to discriminate, and not just say “consciousness” as a blanket term? But to qualify it as vital consciousness, vital mind, vital intuition, and physical consciousness, mind and intuition, and to begin to discriminate more clearly now that this human event has arrived at the point where we might be able to consider the “integral being”. To explore in detail the different levels of consciousness and not just be satisfied with the blanket term – it’s consciousness that evolves. When we ask what is it that evolves? And we answer with the term “consciousness”, what is meant by that term? That term itself may have multi-dimensionality.

When we get to the bottom question, what is the evidence that mind evolves at all, we should perhaps think about how consciousness can evolve. Consciousness has undoubtedly evolved up to a point, but if we mean by consciousness what is evolving, then maybe it has a long way to go. If we mean by consciousness something that doesn’t evolve, something that is supernatural, then what is the relationship between that and what evolves.

What does the increase of knowledge and the more we know have to do with consciousness?

Good question.

***** Group Discussion Notes and Questions *****

What are the most interesting questions or problems that arise for us regarding the theory of evolution?

Since man is aware of evolution, he tries to control it. So what kind of a slop are we about to make of evolution by trying to control it?

How did the transition from apes to man happen? Or did it happen? How did we get from shrews to elephants? How did Mind come about?

What role did the ancient kings/civilizations (pre-pharaoh Egyptians) play in the process of evolution? Has there been digression?

Are we part of nature? Why do we seem to think that we are not?

What is really evolving? Is it consciousness? Is the evolution of consciousness different from the evolution of nature?

Why is the study of evolution and philosophy dominated by men? Is something else now happening, a shift towards the feminine? What is the meaning of the evolutionary process, and what is the next step of it? Is "male" (mental) domination over nature a cause of why "we" seem to see ourselves separate from nature?

What is the force that pushes us to find a theory about nature? How does this knowledge of a theory help answer the question "Who am I?"

What is this mind? How does it work? What is its role? Can we go beyond the limitations of mind?

What is the difference between human society, and the societies of animals or insects?

What gives us the sureness that our (the human) mind is so different from other minds (plant, animal, mineral...)?

What characterizes the human mind? How do we (how can we) distinguish it so clearly?

Why do we create law and order? Do we have to?

What answers, propositions, or ideas would we suggest for further exploration?

The theory of evolution results from observation and rational deduction of the continuity of process and change over an immense period of time. It is the meaning of this process and how we are involved in it that is now the important question. Why does consciousness become aware of itself, of being, and the possibility of its own evolution?

We should explore in more detail the different levels of "consciousness"; perhaps Consciousness is not a blanket term for what evolves. And if Consciousness is an eternal idea that doesn't evolve, What is the relation between Consciousness and what evolves (Nature)?

What evidence do we find to support the ideas of the past evolution of mind, and possibly a future evolution beyond mind?

The use of tools may indicate the evolution of mind. Animals use tools and apparently have thoughts and emotions, but man from the earliest times uses these faculties to plan, to organize, to regulate his life.

Language and abstract concepts emerge very early as specifically human instruments, ethical mind and values become the characteristic or essential principles of human societies as distinct from animal or vegetable societies.

In the early Twentieth Century there was a moment of realization that it might be possible to evolve beyond the limitations of mind: the preoccupation became the definition of the limits of mind. Now the question for mind, and for the human species, is How to evolve beyond itself? The ultimate ethical choice: human sacrifice for the sake of another yet to come.

Lecture 8

Konrad Lorenz and the Roots of Cognition

What I am proposing to do here, after making the shift from Darwinism to philosophy with Bergson, is to focus specifically on the work of one mind. This focus follows the discussion that came at the end of last week's sharing and attempts to answer the question raised about the presence of consciousness and the foundation of consciousness in lower forms of life. Konrad Lorenz did a very good job of putting the higher ranges of human understanding back in touch with the lower forms of life and finding the origins of consciousness in matter. That has been very much the project of our age. From Nietzsche to Bergson and Sri Aurobindo and the quantum physicists and biologists, the project is really very much a project of putting consciousness back into matter, and reconnecting consciousness with its origins.

The philosophical project, as I have mentioned more than once, has been defining the frame. Human understanding is abstract, representational, and we are able to know everything as such. But, all of that which we know is actually a frame of what is, a pictographic frame, or a verbal frame, or a systematic frame, and so what has been learned through the last hundred years about consciousness is basically that it is not the frame, but what we know is reduced to the frame. So, when Heidegger declared the end of philosophy he was addressing this idea that now everything has been reduced to the reserve of energy, the reserve of consciousness, the virtualization of existence is complete and it is a very destructive culmination. Technology is the culmination of this mental development and everything is reduced to the formulas of technology. And so, we know everything quantitatively, we know what it is, where it is, how much there is, and what can be done with it, what the potentials are, where they came from, where everything fits with everything else. We know everything now in terms of this abstract formulaic knowledge. And it amounts to a crisis. The project of philosophy in the 20th Century, from Bergson to the present, following

Nietzsche's inspiration, has been to define this frame and its limits, the limitations of this human understanding, and the importance of turning it all upside down and reconnecting with the experiential reality. Lorenz goes very far in this direction and begins to discover the roots of consciousness in the simplest structures. He declares that all of evolution is a process of learning; that cognition is the basic process of evolution. And he demonstrates this quite well. He also brings us up to the frame, so we can ask this question again.

In this summary, if this were a regular university class, everyone would expect to be expected to produce something. All of these questions that we put up last time (Group Discussion at the end of lecture 7) could constitute themes for papers that you would research and present to the rest of us and then you would really learn something. We don't have that expectation here, which shows in a way the primitive nature of our university project. We are sort of in the religious mode here, where people aren't really expected to learn anything. They are simply to just copy what they are told by the authorities. I'm the priest; I'm giving you the word of the authorities and you're supposed to get enlightenment from it. Of course we all know that doesn't work and maybe we will find a different mode at some point. You have the option and the outline to do your own research in these areas that you have asked about. All those questions came from this group. That means there are some questions there that people have put forth. And we will learn from Konrad Lorenz, that exploratory behavior is really the way we learn to use language meaningfully. When you're in front of something you don't understand really, you explore it. You chew on it, you kick it around, you paw at it and try to eat it, and you figure out something about it. And it's play. The most sophisticated philosophical mind in the world today, who recently died unfortunately, at not too old of an age, - I think he was seventy-five or so, Jacques Derrida - said that the real human function is play. Our highest resource, our way to be most fully, is to play, and learning is play, literature is play, philosophy is play, art is play, theater is play, and life is play. We got it from our lower animal cousins.

Lorenz shows us that one of the important transitions that took place in animal evolution was when stereotypical behaviors which were originally for a purpose related to survival, began to be used for the purpose of play. A whole series of behaviors that you can observe in an animal under normal survival conditions, you can observe all together at one time in a play situation. The animal will go through all of its inherited and perfected behaviors that it uses in the wild within a few minutes of play, not for the purpose of what any of those behaviors were meant for originally, but just for the purpose of learning, experiencing, showing off and having fun. Moving now to Konrad Lorenz's work, we'll read through some of these things.

The whole theory of constructivist education comes from this understanding. Lorenz called his field *ethology*, and the Greek root of the word is *ethos*. It means a habit or a way of being, a recognizable form of a people, or a person, or a society. Its *ethos* is its characteristic behavior. What Lorenz did was study the characteristic behaviors of thousands of species and he compared them, and analyzed them. Ethology is what he called his science. The first concept here is the root concept that Bergson also spoke about in the excerpt from his *Creative Evolution*; it is the fundamental concept of empiricism. Lorenz begins his book *Behind the Mirror* (1973) with this definition of how we know things: "The world of objects, the material world of our experience, only takes shape through our eliminating the subjective and the contingent. What causes us to believe in the reality of things is in the last analysis the constancy with which certain external impressions recur in our experience, always simultaneously and always in the same pattern irrespective of variations in general conditions."⁵⁰

'Contingent or subjective influences' - if we think about the whole process of categorizing, phyla, classes, orders, and genera and so on, what is necessary for us to do is to reduce them to their common characteristics and to eliminate all of the contingencies of their existence. A contingency is something that happens but doesn't affect

⁵⁰ Lorenz (1973, Eng. Ed. 1977), *Behind the Mirror*, p. 3

anything essential. So, whether or not the animal appears at the lake side this evening, has nothing to do with the fact that the animal appears at the lake side regularly. After observing a series of phenomena, we eliminate all of the - what Aristotle called - accidents, and we retain that which is constant. Lorenz describes this activity of abstracting constant properties with the verb *objectivating*, and its achievement by the noun, *objectivation*. This is obviously something that is done by the mind. It is an abstract linguistic activity of the mind.

This is problematic in the end because, once we have done that, we no longer have the thing itself. Our experience of the thing itself is a direct contact, and our nervous system receives the vibrations of the thing itself and returns vibrations to the thing itself and enters into a ground of experience from which impressions are gathered which are then abstracted as knowledge, as concepts. This is a process that Lorenz explores in great detail.

"The scientist sees man as a creature who owes his qualities and functions including his highly developed powers of cognition to evolution. Any adaptation to a particular circumstance of external reality presupposes that a measure of information about that circumstance has already been absorbed."⁵¹ He starts with the example of a gastropod, a snail, and he analyzes how this snail wrinkles itself up and stretches itself out, in order to move in which direction, and he comes to the conclusion that the snail receives input - heat, moisture, changes in the environment, which shift the surface tension and enable the snail to move in a certain direction. And in that moment, he concludes that the snail has processed information about the environment. The idea that consciousness, our consciousness, evolves from the earliest one-celled organisms is based upon the idea that the earliest one-celled organisms through their level of consciousness enabled the next level of consciousness to emerge, and so on through three billion years. Each big change he calls a *fulguracio*, a lightening flash; the major changes he calls lightening flashes, and he will show how the human being

⁵¹ Ibid, p. 6

emerges as a result of synthesizing many different streams of development that were undertaken in this way by different species. But, all of these experiments of evolution achieved relationships in the whole field, and everything that exists learned from all of those relationships. And then at some point there was a synthesis, each aspect of which can be traced back to some line of consciousness that had evolved in some other species already.

“Similarly, anatomical development, morphogeny, the forms of things, produces in the organic system actual images of the outside world. ... Even the slipper animalcule, the paramecium, which when it meets an obstacle first recoils slightly then swims on again in a random direction, knows something quite literally objective about its environment. ... Everything we know about the material world derives from our phylogenetically evolved mechanisms for acquiring information, mechanisms infinitely more complex than those which elicit the avoidance response of the paramecium. ...The method of the genome, the bio-chemical level of species, which evolves, perpetually making experiments, matching their results against reality and retaining what is fittest, differs from that adopted by man in his scientific quest for knowledge in only one respect, and that not a vital one. Namely, that the genome learns only from its successes, whereas man learns also from his failures. The acquisition and storage of relevant information is as basic a function of all living organisms as is the absorption and storing of energy. ...*Life is an imminently active enterprise aimed at acquiring both a fund of energy and a stock of knowledge, the possession of one being instrumental to the acquisition of the other.*”⁵²

And so the behavior of animals is primarily for the sake of storing energy. In order to do it the animal is learning from its environment and when it learns it succeeds. What it learns it passes on genetically because it reproduces its kind.⁵³ And if the next generation has a better

⁵² Ibid, p. 7

⁵³ Strictly speaking the transmission of acquired behavior or character is not possible in terms of genetics and this statement must be challenged. In a qualified sense,

understanding, a more perfect sensitivity, a longer neck or beak, then it learns something that its progenitor didn't know and it survives a little bit better and it reproduces itself more successfully than its progenitor. At this completely unconscious level, in terms of what we call consciousness, cognition is going on at the phylo-genetic level, at the morpho-genetic level, at the physical-vital level, cognition is always going on.

Lorenz says, "It strikes me as a matter of course that we should investigate both the objective physiological processes which provide men with information about the external world, (meaning human beings), and the subjective events of our own experience and knowledge. Our conviction of the unity of man as a physical entity, the human being, and an experiencing subject, soul, entitles us to draw our knowledge both from physiology and from phenomenology. An investigation of this kind must needs pursue a double aim. On the one hand, it seeks to formulate a theory of human knowledge based on biological and phylo-genetic information, and on the other to produce a picture of the human being, which matches this theory of knowledge. This means making the human mind an object of scientific investigation."⁵⁴

So that is what we are doing, and that is what Sri Aurobindo said would be one of the two ways for human beings to discover that consciousness and force are the essential principles of existence: 1) either by a scientific study of the human mind equal to the scientific study of living things or 2) by an intuitive approach. Either way, he said, could bring the human being to an understanding that consciousness and energy are the same (see Appendix 1, [Evolution and Consciousness](#)). The scientific mind is pursuing that understanding scientifically, by observing nature; the intuitive mind is pursuing it from the top down, reconnecting with the universal consciousness-force at

however, the developmental pathway is reinforced by the phenotypic behavior. The relationship between genome and phenome is still a mystery.

⁵⁴ Ibid, p. 4

the top. Either way, said Sri Aurobindo, can arrive there. This is the scientific approach: the physiological roots of conceptual thought. I think this is extremely important to be aware of and it is not something that we see with our eyes; it requires a considerable amount of study and analysis. "What our sensory and nervous mechanisms, optical or auditory, convey to us is invariably the product of highly complex if totally unconscious computations which seek to abstract from the chaos of accidental sensory data those data which are constantly inherent in that trans-subjective reality which we realists assume lies behind sense data. The essential function of this unconscious reasoning lies in establishing a correlation or a constellation of certain stimulus data, which remain constant in time."⁵⁵

The sensory system itself selects from experience, learns from experience what happens when it gets this close to that temperature and after a while it doesn't go that way anymore. After a certain number of constant experiences it learns not to go that way. When that odor hits the receptors, the afferent nervous system sends the response to keep going in that direction because it has learned that that is where the ripe bananas are. The physical has incorporated through species and millennia, patterns of behavior that it has learned, that they have learned, and these behaviors are part of the complex, the physical, vital, mental complex. The mind is working in the physical, and in the vital, for survival through billions of years. This has always been known by the human mind. It was a very early understanding, but to substantiate it with certainty has been an obsession for at least twenty-five hundred years of the human species. The intuition was there, Aristotle had it and surely those before him had it better than him because he was already falling into the logical certainty trap. Now that we can observe species with electron microscopes and subject them to all kinds of experiments, we can find out how fast they learn and under what circumstances they learn. We can teach paramecia, and rats, and chimpanzees to do things.

"As has been demonstrated, the visual cells on the frog's retina are

⁵⁵ Ibid, p. 114

united into separate groups and send their afferent neurites, (afferent means nerve tissue that receives and responds to stimuli), to one ganglion cell; the latter responds selectively to messages from the group as a whole. Each aspect of the group sends a slightly different impulse and the ganglion sort it out and arrive at the nature of the origin of that impression. One gives a signal when a dark shape passes across the retina from left to right, another when its cells register an increase or a decrease in illumination. There are even ganglia which respond only when a convex area of shadow moves in a particular direction. In the strict physiological sense, the actual stimulus is simply the light that falls on a rod or cone cell. That a convex area of shadow is moving across the retina from left to right, (probably an insect not too far away for the jump), is a message transmitted by a highly complex neuro-sensory mechanism which responds to a pattern of individual stimuli."⁵⁶ The frog jumps and catches the fly and knows exactly the distance.

For these kinds of recognizable patterns of behavior Lorenz coined the term *key stimulus*. It's not just any kind of stimulus and response, behavioristic concept, but it's a concept of patterns of stimulus and response behavior that are regular features of the behavior of an organism or a species. "A great deal of our knowledge rests on the principle of *pattern matching*. But, our perception of patterns involves a process, which is the equivalent of abstraction, for if messages from the visual cells in the frogs retina combine to provide information of the kind mentioned above, and if this process functions independently of the absolute size of the stimuli, we are dealing solely with relationships and configurations, with abstractions. What is abstracted in this way are properties constantly inherent in the object. This kind of perception we call *constancy phenomena*."⁵⁷ These constancy phenomena such as color constancy and form constancy, have different causal origins yet all serve the purpose of enabling us to indentify the objects around us as being

⁵⁶Ibid, p. 115

⁵⁷Ibid, p. 116

the same.

In philosophy in the 20th Century one set of concepts that has been explored repeatedly, because it is the fundamental characteristic of knowing, of the way the human mind functions, is the concept of identity and difference. We know things spontaneously in terms of their sameness and difference. And our tendency, just like the tendency of the frog, is to eliminate the difference and focus on that which is the identity, and to give it a name, and to give it a category, and to give it the status of a law if it's a recurrent behavior. We arrive at the concept of law and generality in the same way as the frog arrives morphogenetically at its survival behavior. And we are not conscious of those extremely complex underlying transfers of energy that are happening in ourselves which enable us to suddenly perceive the identity between five thousand words written by Martin Heidegger and five thousand words written by Sri Aurobindo, and five thousand words written by Henri Bergson. But, it jumps out at us - the identities of their concepts and the differences of their expressions are processed by us in a kind of subtle audio visual pattern that is the product of a billion years of evolution. We don't know how it happens, we just suddenly know that we become aware of it, and it corresponds to what's there because we can check it out with each other and sure enough we all process it pretty much the same way, some a little faster and some a little more slowly perhaps, depending on training. This is an example of the leaps which happen at an unconscious level to make what we know possible. There are innumerable anecdotes like this.

"It once happened that a calculating machine originally designed to work out compound interest surprised its inventors by showing a capacity to handle integral and differential calculus as well. Something similar is involved with constancy mechanisms of perception, which were developed under the selection pressure of the need to infallibly identify particular objects in the environment. Surprisingly these same physiological mechanisms are also able to isolate the characteristics not just of one single object but of a whole class of objects, ignoring

variable contingent features found only in individual cases, and identifying the basic constant gestalt of class."⁵⁸

That is exactly what we do when we perform complex mathematical operations or write philosophical tracts. "This supreme function of constancy mechanism, (constancy mechanism means that somehow your cells, and your nervous system, are able to tell you what's red every time it sees it), is quite independent of rational abstraction. It is equally proper to higher animals as it is to small children."⁵⁹ All these functions of abstraction and objectivation are performed by gestalt perception. It means that you recognize a complex field of stimuli for what it is, without all the unnecessary details. For example, in psychology when you observe the behaviors of a certain pathology in a patient over a long period of time, you eventually come to an understanding of that behavior which is 'that behavior', under all of its different impulses, and deprivations, and idiosyncrasies, and suddenly you get it. And you get the root of it, and you get the idea of how to treat it, and you somehow know the whole without any of its extra, unnecessary, distractions which have preoccupied you throughout many sessions of analysis.

He is speaking about when the thing itself reveals itself to you, as a result of frequent observation, and he's tracing this phenomenon back to very simple organic behaviors where nobody can impose any preconceptions, because the animal deals only with the object. And what eventually becomes clear is that the human being can generalize without the presence of an object. This he says is the sole difference between the way the human being functions abstractly, and the way the animal functions abstractly. The animal always needs an object present to make an association; the human being doesn't need to have an object present. And therefore it is possible to transmit knowledge to others which they can then apply in a situation when it arises, without already having seen that situation. Animals cannot do this, according to

⁵⁸Ibid, p. 117

⁵⁹Ibid, p. 118

what we can observe. They can behave with knowledge based upon the experience of an object, when that object is in the field of experience and their characteristic behavior is stimulated, which is learned through experience. Whereas human culture has taken this fundamental physiological function of the mind and leaped into this plane of pure mental abstraction where, based upon experience, we can keep an object in our consciousness for a very long period time, even a lifetime, and continually develop that object which is now a mental object, that becomes a cultural artifact. (Bergson treated this subject at length in *Matter and Memory*.) And that cultural artifact conveys to others who haven't had our experience quite a lot of information. The attempt here is to draw parallels between these – physiological and mental - phenomena.

"Perception, (by which he means sight and hearing primarily, and touch), even, appears to possess its own mechanism for storing information. I have described in detail how the process by which a gestalt or form crystallizes, emerging against a background of contingent elements, may extend over very long periods, sometimes many years. Pathologists and doctors find time and again that a recurrent pattern of individual events, such as a succession of movements or a syndrome of pathological symptoms, is only recognized as an invariable gestalt after sometimes thousands of observations. (There can undoubtedly be mistakes made at that time also.) What happens in such a case is remarkable enough. We obviously possess a mechanism that is capable of absorbing almost incredible numbers of individual observation records, of retaining them over long periods, and on top of all that evaluating them statistically."⁶⁰ Now, evaluating them statistically is the rational abstract function, but observing them and storing them is not. At least this is a distinction that can be made not only in the human being but at many levels.

"A system that can achieve this must be highly complex. Yet, it is not surprising that in spite of their many similarities to rational actions, all of

⁶⁰ Ibid, p. 118

these sensory and nervous processes take place in areas of our nervous system which are completely inaccessible to our consciousness and our self-observation. ...Ratio-morphous functions, (we are talking about subconscious selection processes), are independent of abstract thought and as old as the hills, (like those which happen with the frog's sight). From the practical point of view the perceptual functions of objectivation, (that means storing an impression), and conceptualization, (which means analyzing information), are the precursors of the corresponding functions of abstract thought. (This would be primitive conceptualization; understanding constancy... "are the precursors of the corresponding functions of abstract thought.") As is the case whenever preexisting systems are integrated to form a higher unity, the former are by no means rendered superfluous by the sudden emergence of the latter but constitute its precondition and its component parts."⁶¹

The intuitive consciousness, therefore, can't be performed or realized by the rational mind; the rational mind is something else. The intuitive mind emerges from it. But it's a different function all together, and when that new function emerges it implies new structures. It's not the rational mind anymore, which is functioning. It has its own characteristic structures. But, if those structures didn't exist, hadn't been evolved, then these new structures could not emerge. This is the bottom up perspective, this is the evolutionary perspective. This is not the involutory perspective. In *The Life Divine*, which is going to be the focus of our last few weeks, Sri Aurobindo dwells upon this idea constantly: that the new consciousness cannot descend unless the higher mind is developed. But when it does descend it is a completely different type of functioning. The ordinary rational functioning is still there but it is altered and transformed and put in a different light, because it's no longer the dominant power. But it doesn't go away, it can still be used. So the Mother can say, I left my mind behind a long time ago, but every week I'm sitting here with Satprem describing in perfectly logical terms my experiences... It sounds like a contradiction.

⁶¹ Ibid, p. 119-120

But not necessarily.

Now we come to the human mind: abstract thought, language, and culture. What evidence is there that the human mind evolves? We began to explore the question last week: What characterizes this human mind? What makes it different from other species' minds? Has it itself evolved in the last five, or ten, or fifty thousand years? Is there evidence of that? Lorenz says, "It is only the development of abstract thought together with the complimentary development of verbal language that enables tradition to become free of objects, for by means of independent symbols, facts and relationships can be established without the concrete presence of the objects themselves."⁶² Tradition, he explains, is a recognizable form of behavior in other species. Chimpanzees can communicate a tradition of tool use to their offspring, if they are in the presence of what the tool needs to be used for, and the material of the tool, and if all the circumstances come together in the right way, then the offspring can learn that under those conditions that thing can be done. But, if a behavior of that kind is isolated the next generation will not know it; it has to be a direct transmission. It is a kind of early form of tradition, which is the passing on of or the inheritance of acquired traits. The inheritance of acquired traits is what can't happen according to Darwinian evolutionary theory, but the thing that makes the difference between highly developed minds and other organisms is that we do pass on acquired traits through exposure, through example. (This is a major theme in the work of Teilhard de Chardin.) Our behaviors do not depend upon genetic transmission. If the transmission of a behavior to subsequent generations does not require genetic transmission, if it is not part of the physical vital complex, it is a behavior that is transmitted essentially as a quality of understanding, an art, a science. These can be passed on through generations traditionally, by culture. Animals do not do that. We share abstraction with animals, but there are some characteristics we don't share - language is one, in the way that we use it.

⁶² Ibid, p. 161

Lorenz identifies approximately eight different higher consciousness functions⁶³ that already exist in very low phylo-genetic levels of evolution. The *constancy function* (1), which we have heard about, and related *insight controlled behavior* (2) which is directed to the survival purposive solution of problems, by means of the mechanisms that convey instantaneous information. On the spot, animals can have an insight into the situation in front of them and solve a problem. The most essential of these mechanisms are for spatial orientation, of which among the higher vertebrates the most important are those of sight. Mammals first survey the situation for some time, in order to apprise themselves of the structural details of their surroundings, and then proceed to solve the problems posed by it at one stroke. This is very common animal behavior – insight controlled behavior, and consequent *voluntary movement* (3) in space for a purpose. Animals can move voluntarily not just by stimulus but by choice, not by external stimulus alone but by choice. Perceptions of space and adaptability of motor activity are closely related. The reason why animals perceive space is so they can move in it.

Exploratory behavior (4), is that mechanism whereby voluntary movement develops a new important function consisting in the feedback of information on the spatial parameters, by way of re-ference. So the animal explores, plays, pokes around, gets information back and decides what it's going to do about it. Exploratory behavior is common at all levels, practically, of life. As a tool of imitation, voluntary movement is a prerequisite of verbal speech and therewith for the higher evolution of abstract thought. And he uses Chomsky's examples of how language, which is similar among all subspecies of human beings, follows the same structures, and he uses the example of Helen Keller who learned without any knowledge of language all about language. The idea that these processes of abstract thought which go on at the cellular level for the purpose of assessing, evaluating, choosing, surviving, – this voluntary movement and abstract thinking which are going on at the cellular level, as Chomsky says, constitute the

⁶³ Ibid, Chapter 7

preexisting structure of language. So when language starts to be used, it is spatial. (With Rudolph Carnap, we may also observe that it is logical.) It is used basically in all cultures in the same way with respect to space, – verbs, nouns, and prepositions, and what we do before and after, and where we go. Most of our basic language patterns are logical linguistic patterns and not just linguistic patterns. They are not separated from our fundamental, logical functioning processes, at least in their early primitive usage.

Imitation (5) is strictly speaking not an independent cognitive process. In man the active imitation appears to be initiated by kinesthetic processes. Both humans and birds have an urge to imitate sounds and they follow this urge for its own sake without concern for its purpose. Many human beings do that too. It's more fun than using it for a purpose; it's called chatting.

Now we get to *transmission of tradition* (6). The transmission of individually acquired knowledge from one generation to the next is known as tradition. Individually acquired knowledge. Birds and lower mammals sometimes pass on knowledge of a particular object in this way, while apes can hand down certain techniques. In all these cases the transmission of knowledge is dependant on the presence of the object. Only with the evolution of abstract thought and human language does tradition, through the creation of free symbols, become independent of the object. This independence is the prerequisite of the accumulation of supra-individual knowledge and its transmission over long periods, an achievement of which only man is capable.

Now the question of *cultural invariance* (7) and how cultures transmit knowledge - human cultures - is our question. Is the human mind evolving? Or are all of these human cultures more or less always the same? Do we just keep doing the same things in more or less the same ways from age to age and culture to culture? One of the images that Lorenz uses is the image of the phyletic tree where, if you look at all the animals at the top of the tree you don't necessarily conclude that they

have a common origin. If you look at all the different cultures that have existed in history, their artifacts, their languages, their religions, behaviors, and economic structures, they are all very unique in their expressions of all of these things, even though they share similar patterns. You don't get the idea that one developed from the other. You get the idea that they all developed independently, and that's pretty much the case. The great early civilizations that we know of, developed quite independently. So, what happens culturally from age to age, not from culture to culture, but from age to age in the vertical development of a culture? Do they all evolve in similar ways? This can be studied and has been studied. This is what Gebser has done and in the next few weeks we will look at both Gebser and Sri Aurobindo for this developmental perspective.

But the function of culture is this transmission of acquired knowledge, which enables cultures to evolve. And yes they all have evolved and this is how they did it. "Knowledge cannot be stored in any other form than in structures, whether this be the chain molecules of the ganglion cells of the brain or the letters of a textbook. Structure is adaptation in its finished form. But, if further adaption is to take place and fresh knowledge is to be acquired, a structure must be dismantled and rebuilt at least in part. ...All accumulation of human knowledge as a necessary constituent of cultural being depends on the creation of firm structures. These structures need to possess a relatively high degree of invariance in order to become inheritable and to be passed down cumulatively over sustained periods of time."⁶⁴

All of the great cultures have these structures which have been firm for long periods of time and have enabled everybody to acquire certain values, or at least they have expressed the values that everyone values, significantly. Maybe not everyone values them but they have held together the fabric of society for long periods of time and they have undergone wars and they have undergone changes in climate and they've undergone migrations, but the cultures themselves have

⁶⁴ Ibid, p. 198-199

retained a consistency and a level of invariance. The sum total of the information possessed by a culture residing in its habits and customs - that's ethology - its methods of agriculture and technology - that's science - in the vocabulary and grammar of its language, and above all in its conscious learned knowledge - and elsewhere he calls this ethical norms, ethical values - has to be stored in more or less rigid structures. "But one must not forget that structure is adaptedness, not adaptation, knowledge already possessed, not cognition."⁶⁵ Here is an interesting definition of cognition. Adaptedness is not cognition, not acquiring knowledge. And as genetic constancy and variability - constancy on the one hand and variability on the other - identity and difference have to strike a balance in the genome of an animal or plant so it can survive, so also do the invariance and adaptability of knowledge in a particular culture have to be in balance. So, the culture has to have a certain amount of viability and flexibility, if it's going to continue, but, it has to have a kind of invariance that gives it consistency just like in a species.

Now *ritualization* (8) is the most interesting aspect of the whole thing. There is a large complex of behavior patterns, very diverse in origin but remarkably similar in function, which plays an important part in preserving the invariance of cultural tradition. Ritualized behavior is present in various animal species, such as in the dance of bees, and mating displays, and pawing in the cat species, and antler bashing in the deer species, where the behavior is not being used for the purposes it was originally created for but it is used as a demonstration to show that this one is the leader, or this one is only playing, or this one knows where it all is, but it's going to take time for everyone to figure it all out, so we are going to dance around in this circle until everybody knows, and then we are all going to go there - but it's for the purpose of transmitting information, ritualized behavior. And, he says there are remarkably extensive parallels between these processes in the phylogenetic and the cultural fields, remarkable parallels between the way animals use ritual and the way humans use ritual. Communication, channeling of certain behavior patterns into specific areas, for example,

⁶⁵ Ibid, p. 199

channeling aggressive behavior - so we have our sports events where we channel our aggressive behavior, we have our war games that we play with other countries so that they know and we know how important these things are and how good we are at them and how advanced we are. And we have marriage ceremonies which let everybody know that this means whatever it is supposed to mean even if it doesn't mean that. And everything, this academic situation, this going through the motions of summarizing information is a kind of ritual behavior that is undertaken in western society, especially. We can all live perfectly well without it. It's not essential to our survival. We require young people to go through this as a prerequisite for entering society. Going to the priest every Sunday and hearing the same message over and over again for generations - this is ritual behavior. Also, sitting in front of the TV, watching the soccer game in the bar with your friends, is ritual behavior.

These are behavior patterns that reinforce our social cultural stability. If there were not a certain invariance in these things, people would fight with each other, more than they do, or they would be less satisfied with their meager incomes. The capitalist society can reinforce these rituals in order for people to be satisfied with a level of sustenance that is much lower than others who have more expensive rituals, who sail their yachts to Morocco and wear their suits in front of slot machines, and that's their ritual, while the average guy goes to the bar to watch the soccer match.

From the superficial convention of manners, - like driving on the right side of the road, unknown in some cultures - to the underlying substance of ethical attitudes and convictions, social conduct bears the mark of the age. (We are not in the bullock cart age any more guys!) And the spirit of that age imposes on man's innate program of social conduct a pressure that increases with the development of the culture in which he lives. Why? Because the morphogenetic structures don't change as fast as the culturally transmitted behaviors do, and the more developed these culturally transmitted behaviors become, the more

difficult it is for the common behaviors to adjust to them. One of the reasons why high cultures suddenly collapse may be that a revolt breaks out against a situation in which a culture that is becoming more and more ritualized, more and more sophisticated, imposes a degree of constraint on the lower vital and physical which is felt to be increasingly intolerable, a revolt diagnosed as a decay of morals.

It may also be diagnosed as a leap forward for some, for the few, the elite. But, the elite may see that it is no longer viable the way it is, and so that decay of morals may be a necessity for a recycling of higher values. There are many ways to look at this, but what Konrad Lorenz has done, is give us a scientific picture of the evolution of behavior structures which are rooted in the cells, but which have emerged in highly sophisticated human behavior patterns in the past five thousand years or so. We have subsequently overpopulated the planet and our survival is now an issue. We will see what Sri Aurobindo has to say about this. (This has been a free rendering, with commentary, of the book by Konrad Lorenz, *Behind the Mirror*. What an analysis of these ideas from a spiritual point of view should show, is that these drives and the leaps in cultural values, at every stage of cultural evolution, have to be explained by something other than the mechanisms – the mechanisms don't explain the leaps.)

Lecture 9

The planes of consciousness

The time before last we asked the question, "Has mind evolved" and "What is consciousness?" In our discussion about 'Has mind evolved?', there was the tendency to use the word consciousness in some kind of comprehensive unspecified manner. It was suggested that we might want to look at what we mean by this word. Do we mean by it mental consciousness, or vital consciousness, or supramental consciousness, or the supreme unqualified emptiness, or do we mean *prakriti*, the forces of nature? What exactly do we mean by this term, *consciousness* ? Does anybody know what they mean when they use this term?

Awareness is the most conventional understanding of the meaning of the word. Force is usually associated with will, or volition, in the human being. In nature, the word for force is usually energy. Awareness is very commonly associated with the word consciousness. In any current study of mind, - and there are many currently - consciousness is defined as awareness. That was something we suggested that we might want to pursue.

Last time, Konrad Lorenz was speaking about the behavior of animals, including human beings, as being characterized by learning. Spontaneous living behavior was characterized by him as essentially a process of cognition. All living things have sensory apparatuses, which enables them to get information about their environment and to decide what they are going to do. There is a processing of information and interpreting that goes on in the nervous system; then the organism decides whether to eat or not eat, or stay and explore, or run away. This is increasingly accepted by Darwinian evolutionists as the way nature selects her preferred modes of development. When she has selected a pattern of behavior that is successful then that tends to be reproduced in other generations. If the pattern of behavior is not one that she prefers, she finds another one, or she dies, or becomes extinct. This

relationship between the organism and the environment has been identified now-days by biologists as a process of consciousness. But this does not mean awareness. It means information processing, stimulus and response, but not in the pure behaviorist sense of stimulus and response, because the organism has already evolved a network of behaviors that are it: what characterizes the organism itself. What it is, is what responds. It responds for a purpose, with self interest and in a way that is characteristic of its type. It is not just learning randomly from whatever stimulus is reinforcing its behavior. It is learning contextually. It is altering its behavior accordingly.

We have at various times in this course identified two principles that seem to characterize living organisms. One is that they share with all other living organisms certain structural similarities, which amount to identities in many cases. For example sight is a perceptual apparatus that is shared by all living things to some extent. Touch is an apparatus for sensing temperature change, and tasting things, etc. These senses are shared by all living organisms to some extent. There are organs for hearing at just about every level of evolution.

We have identified organs of consciousness, perception. Often consciousness is associated with perception, which is almost the same as awareness. When the light stimulus reaches your nervous system you distinguish between this new light and these old lights that we are familiar with, spontaneously. Lorenz identified this activity of consciousness as the 'constancy phenomenon'. There is not only perception of this new light; there is an abstraction of its nature in relation to all the other lights in the room. And one immediately realizes that there is a new light structure in this environment. Before you even look at the black frame and ask yourself, Why is it here? or Where did it come from?, you already know something about it which you don't reflect upon. The nervous system of all living things is storing information all the time, constantly, about itself and its environment.

Let's ask, what is it that we are aware of? You can be aware of something

outside, or you can be aware of something inside, and when you look at Samkhya philosophy you learn from these early psychologists (of India) that whether it is inside or outside, it's an object of awareness. The entity that is aware is something else. In modern western philosophy, (phenomenology), this distinction has been made very rigorously between the mind and what it is aware of, the extended world and that which knows the extended world. That is one of the features of the human mind, which we have indentified in our course, that is apparently different from the minds of other organisms.

The human mind is aware of being aware of things. It reflects upon whether this thing is itself or something else. It takes into consideration some of these 'constancy phenomena' and holds them up before its reflecting mental view, - awareness, or consciousness - and in doing so, it makes the perception into objects. And then, it takes these objects for the reality. Then we come to our thinking, along the lines that Henri Bergson suggested. We begin to distinguish between the frame of reference which we call our mind and which holds before itself all these static representations of things, and the ground from which they are taken, which is the ground of perception and energy and extension and experience.

Many of the things that we know are held in a semi-conscious or unconscious state of the mental apparatus. So there is a physical mind, vital mind, intellectual mind; there is an intuitive mind, and so on, and Sri Aurobindo says that these "mental" planes are a function of the relationship between Purusha and Prakriti. The way that consciousness relates to the physical and the way it relates to the vital and the intuitive, constitute planes of consciousness, planes of perception, and planes of reality.

What Sri Aurobindo does is, he objectifies totally the subjective, and says that mind is a plane of reality. It is not something that happens between your ears. That is the mental functioning of the human being. The mind itself is something else.

The vital is not just your processes of preference, and digestion, and greed; it is the whole movement of nature to possess, enjoy, and reproduce itself. The physical is not just atoms and chemicals and cells. The physical is one continuous plane of existence. We exist in these physical, vital, and mental planes, and they are the integrated three-fold complex, known as the world manifestation, the threefold World.

Behind and up a little bit in our awareness, if we can put ourselves on the rack and notch it up a little bit, if we can subtilise it a little bit, if we can learn to see the whole and feel deeply what it means, then we find that there are other planes interwoven here, in this reality that we occupy. We can tune into something outside of us and experience our oneness with it. This is called intuition. We have spoken a few times about being able to identify with the emotions of animals. We can sense them. They are real. When we say we can sense the emotions of animals we are abstracting from that reality.

Now we know everything. We know all about matter and all about life, mind, and where it's all connected, and what it's related to, what its potentials are. Heidegger refers to this as the "frame". It's the reserve of information and experience and knowledge that is held by the mind and held by the information retrieval systems and held in reserve for our will to unlock according to our vital, mental, or physical urges at any particular moment.

We can either run out there and club that dog into submission, or we can cultivate its understanding of what we are doing and it can come and sit quietly by us in the room and listen to us and enjoy it. Or we can just let someone else take care of it. We know all of these things are potentials of the situation. This is one of the things that distinguishes us from other animals: that we reflect upon the frame of objectivity. We can also care deeply about the frame of objectivity, and put it away from us and act in a way that is respectful and sympathetic and nurturing. Most animals do this only with their kin or with at least their own species.

We have this ethical mind - which is the rational mind, plus care, - which seems to characterize 'human mind' more than anything else, because every human society as far back as we know, has put in place rules for the individual to control his behavior for the sake of commonly recognized benefits. Human societies are characterized by ethical behavior to an extent that is far beyond any other species' behavior. Then, Konrad Lorenz tells us that we ritualize this, whereas most species ritualize behavior to communicate about their own survival patterns. We ritualize everything just for the sake of communicating, because we don't depend upon objects being present in order to determine our response. The objects exist for us always.

Religions ritualize our deepest feelings, inspirations, and rules of conduct, so that we don't commit adultery, and kill our neighbors, and steal what we want just because it will be good for us. We put in abeyance these drives, and even to the point of not procreating, and not eating, for the sake of liberation from the demands of our inner and outer environments (ie., fasting and chastity).

We are looking at a process of the emergence, in the human being, of a vast range of behaviors that we relate to the term "consciousness". The more conscious we are, the more capable we become of putting on hold our animal drives, for the sake of our values. We ritualize this behavior in a vast range of ways from music and theater, to religion, courtrooms, and universities, to sports fields, sports bars, and just about everything we do is some ritualized form of more natural animal behavior.

Sri Aurobindo considers some of these things in a similar way to this. I am going to refer to the chapter called, 'Man and the Evolution' which is the most pertinent one for this course. "It may be conceded that what man has up till now principally done is to act within the circle of his nature, on a spiral of nature-movement, sometimes descending, sometimes ascending, - there has been no straight line of progress, no indisputable, fundamental or radical exceeding of his past nature: what

he has done is to sharpen, subtilise, make a more and more complex and plastic use of his capacities. It cannot truly be said that there has been no such thing as human progress since man's appearance or even in his recent ascertainable history; for however great the ancients, however supreme some of their achievements and creations, however impressive their powers of spirituality, of intellect or of character, there has been in later developments an increasing subtlety, complexity, manifold development of knowledge and possibility in man's achievements, in his politics, society, life, science, metaphysics, knowledge of all kinds, art, literature, etc; ...This progress has not indeed carried the race beyond itself, into a self-exceeding, a transformation of the mental being. But that was not to be expected; for the action of evolutionary Nature in a type of being and consciousness is first to develop the type to its utmost capacity by just such a subtilisation and increasing complexity till it is ready for her bursting of the shell, the ripened decisive emergence, reversal, turning over of consciousness on itself that constitutes a new stage in the evolution. If it be supposed that her next step is the spiritual and supramental being, the stress of spirituality in the race may be taken as a sign that that is Nature's intention, the sign too of the capacity of man to operate in himself or aid her to operate the transition. If the appearance in animal being of a type similar in some respects to the ape-kind but already from the beginning endowed with the elements of humanity was the method of the human evolution, the appearance in the human being of a spiritual type resembling mental-animal humanity but already with the stamp of the spiritual aspiration on it would be the obvious method of Nature for the evolutionary production of the spiritual and supramental being."⁶⁶

One of the questions that we also asked was, 'Is there any indication not only that mind has evolved but that it may still be evolving beyond its present limits?' The argument that Sri Aurobindo makes throughout the book, continually, is that the presence in the human mind of rationality itself indicates the will to transcend, because human rationality

⁶⁶ Sri Aurobindo (1970, 5th Ed.), *The Life Divine*, p. 872-873

conceives of the ideal in society. It makes these rules governing human behavior because it can imagine a perfectly regulated world. It can imagine making its members better, higher, more evolved, through education and training, and imparting values. But, they are not there now in the form they are envisioned to become. The essence of rationality is that we abstract from the immediate world of constancy phenomena and project a totality that is different from what we perceive.

From the beginning of this course, we have entertained some of the ideas of Aristotle, who said that the form of a thing is its fully realized potential. Nowhere along its line of development do we see that, until it becomes fully realized. His idea was that the development of any living thing towards the realization of its full potential is determined by its form, which is its essence. But, where does that exist? That doesn't even exist in the current space-time dimension, because we are all transitory temporal entities right now in the process of dying. None of us right now is in the process of creating beautiful art, but we know that it is our true nature to be immortal, and to express immortality through poetry, and art, and noble actions. Even right now, we are not fully realized, but this human mind has this capacity to project. Now we can project our ideals on things for the purpose of judging and condemning them. And we make assumptions that aren't true. But it does other things and uses this idealizing mind to transcend its limitations, and also to know things with respect to their truth.

In Western and Eastern philosophy, both, there comes from a very early time the idea that what we perceive is not the truth of things; but that the truth of things is, with respect to the human being, the Self, the Supreme, Immortal Self, the Form, Plato's Form, otherwise known as the Good, and translated by Sri Aurobindo as the Supreme Truth. The Good with a capital G means: that divine luminous potential that attracts everything to become what it really is.

In biology, we learn that nothing becomes what it really is, that it just

keeps on changing. With philosophy and science, the idea of the Platonic Idea evolves, and it's no longer the particular possibility of the human or of the state or sculpture or laboring species - it is Goodness itself, in these things, which evolves - in our language it is Consciousness, in these things, which evolves. Sri Aurobindo, in this section of *The Life Divine* refers to the *type* of whatever the species is. The type is a structure through which certain qualities have evolved over many generations. He refers to the human being's ability to cultivate species for particular purposes, and Nature does the same thing but more slowly. The evolution of primates for example, from that first little shrew which decided it preferred living in trees, to the first tarsiers and lower primates, to the most evolved primates, to the first anthropoid species - this is the process of evolving what we are talking about here. The mind is evolving here in these types - in these vital physical structures. The mind is what is evolving.

The mind is capable of evolving beyond all of these structures and behaviors that we are so familiar with on earth today because it isn't finished. It needs some new structures in fact, and new behaviors, but it is already able to have a sense of what those are. This is Sri Aurobindo's main importance, through intuition - and it was Bergson who decided this has to evolve now, because the mental frame isn't serving us very well anymore. But Sri Aurobindo developed a path for evolving the intuition, a methodology, a practice, an intention, and in himself attempted to manifest fully what that intuitive mind could do, what its behavior would be like.

Mind according to his philosophy is a product of evolution in general, and it has achieved in the human species a fairly high level of manifestation of its potentials. And, it has recognized its ability to evolve beyond itself; so it has taken over the responsibility for evolution. Evolution has evolved, and it is no longer happening on the ground of nature through immediate perception and response; it is now happening on a level of rational-ideal-will.

We have mentioned often that we share the structures of mind, life, and matter with all other living things, and we have recognized often that each individual in each species acts from its own center according to its own type to achieve its own ends. From the most basic structure of life there is a “self” that is developing and determining the choices that are being made by it. Its self-choices tend to be made in context with its environment and the choices other individuals are making, and evolution has happened like this. If we look at biology, it tells us there is a principle of innate structure in things, and language is an innate structure in the human being. Hearing and sight are innate structures in all species, and we have this amazing awareness suddenly that the organs of consciousness have been evolving from the beginning. Clearly, if its organs have been evolving from the beginning, then consciousness has been evolving, from the beginning, these structures. This is Sri Aurobindo’s fundamental philosophy of Nature.

There is no difference between Nature and consciousness. When we look at the Upanishads we see that the perception of universal Self determining each thing’s individuality – *swabhava*, its Will – has been there from the beginning of human awakening. The ability to respect others, to know and identify with others, is based upon the Self in each individual which is totally unique, and at the same time absolutely one with every other individual. Consciousness is not always aware of that because it is stuck in the egoistic mental level of separating the outer and inner, me, you, and how “I” feel today, from larger perceptions and principles. But it has the capacity to transcend conventional perceptions and behaviors and identify with each and every entity. This is Intuition. This is the intuitive mind, which is emerging. It requires the will to set it forth as a goal, and to suppress the ordinary mental behaviors that fragment and abstract, and reduce things to objects.

Sri Aurobindo in the process of analyzing evolution applied the principles of spiritual knowledge to the processes of evolution itself and how to achieve the evolution of a higher consciousness. He then speaks about reversals. One of the principles he observes is that with the

emergence of each new type of consciousness there is a reversal that takes place, and that consciousness realizes itself through all of the pre-existing structures. Life when it emerged utilized matter to realize all of its potentials. Mind when it emerged utilized all the structures of life and matter to realize its potentials. Now, when intuitive or higher mind or Supermind emerges, there is a reversal and it starts to change the way mind ordinarily works. It starts to change the way the vital ordinarily works. There is a reversal by which it integrates itself into the threefold complex. Sri Aurobindo has introduced this idea of reversal in the emergence and integration of new principles.

We still have not had any need to ask a metaphysical question. We have not yet entered into the realm of metaphysics. We have not yet asked, Why? Because, so far, it has been possible to develop a philosophy of evolution that is totally involved in nature. All we have to do is recognize, as science does today, that consciousness and matter are corollaries. One does not exist without the other.

Sri Aurobindo begins *The Life Divine* with this argument by asking, What is consciousness? He says, first of all, what we perceive is energy. So the universe is energy. But, it's energy doing things. It is not random energy. It is energy organizing itself in patterns and producing species, producing life. Matter itself cannot produce life. Matter is matter, but life is produced. Life itself can't produce consciousness. Consciousness gets produced.

He comes up with a conclusion that I was going to refer back to John Locke, 1690, in which the same argument is offered. It is the same argument that Sri Aurobindo repeats almost verbatim. Mind cannot be produced by matter. Nothing can emerge from matter or life, which was not already there. This has been a perception since the very awakening of the rational mind in the period of the Enlightenment. It was already there in the Upanishads as well. At the end of *The Life Divine* there is a kind of a summary of these ideas in the last chapter, page 1016. "It is consciousness and life that must be the key words to what is being

worked out in time for without them matter and the world of matter would be a meaningless phenomenon, a thing that just happened by chance or by an unconscious necessity. But consciousness as it is, life as it is, cannot be the whole secret, for both are very clearly something unfinished and still in process."⁶⁷

We have this idea that being still in process means being unfinished. Consciousness and life are there in matter but they are not perfect. They are not what we would like them to be. The scientist would say, that is philosophical thinking. They are just what they are, and you can observe them. If you don't like them, too bad, this is it. But the philosopher says: But we need to try to improve them.

When we look at the changes, we see patterns, and we stop with the pattern, and then we compare it with another pattern, and this is what we call knowledge. Then, we try to apply that knowledge for our own purposes of survival and improvement, beauty, and joy, and we find out that it doesn't give us quite what we would like many times. And even when it gives us what we'd like, it disappears fairly soon in the onrush of time. So we have this sense of being on the way.

Sri Aurobindo has formulated that in this passage: "In us, consciousness is mind. And our mind is ignorant and imperfect, an intermediate power that has grown and is still growing toward something beyond itself." Bergson has explained that well, why it's limited, how it's limited, and why it needs to go beyond itself. Now we know everything and it still is not enough. Consciousness, from now on into the future, is not about knowing things; it is about Being. When we achieve that consciousness of Being, we don't need to make rocket ships and ocean liners and faster motorcycles. We just need to be, because things in themselves are beautiful and Divine, and so on. That is a direction in which some minds have an intuition that we should go. Not all of them by any means; not all of them think that. There are some minds that do think that.

⁶⁷ Ibid, p. 1016

“There were lower levels of consciousness that came before the human mind, and out of which it arose, there must very evidently be higher levels to which it is itself arising, and the main proof of that is spiritual experience.”⁶⁸ Before our thinking- reasoning-reflecting mind, there was a consciousness – unthinking but living and sentient. Sentient means conscious. ‘There was a consciousness unthinking’, which means insentient, but able to be cognizant. “After us, or in our as yet unevolved selves, there is likely to be waiting a greater consciousness, self-luminous, not dependant on constructive thought.” Here, this concept of the Self, which was there from the beginning, which each type of creature develops to its maximum capacity, becomes a self, which is in itself everything. It has no need for objects. It is self-knowing, self-acting, self-luminous, self fulfilled, Self. One with everything, universal, unique, adequate, self-sufficient.

“...our imperfect and ignorant thought-mind is certainly not the last word of consciousness, its ultimate possibility. For the essence of consciousness is the power to be aware of itself and its objects, and in its true nature this power must be direct, self-fulfilled and complete: if it is in us indirect, incomplete, unfulfilled in its workings, dependent on constructed instruments, it is because consciousness here is emerging from an original veiling Inconscience and is yet burdened and enveloped with the first Nescience proper to the Inconscient; but it must have the power to emerge completely, its destiny must be to evolve into its own perfection which is its true nature. Its true nature is to be wholly aware of its objects, and of these objects the first is self, the being which is evolving its consciousness here, and the rest is what we see as not-self, – but if existence is indivisible, that too must in reality be self: the destiny of evolving consciousness must be, then, to become perfect in its awareness, entirely aware of self and all-aware.”⁶⁹

The practice of Yoga is meant to enable us to allow the emergence of

⁶⁸Ibid, p. 1016

⁶⁹Ibid, p. 1016-1017

that self-aware and all-aware consciousness which is a potential in the human being. "This perfect and natural condition of consciousness is to us a superconscience, a state which is beyond us and in which our mind, if suddenly transferred to it, could not at first function; but it is towards that superconscience that our conscious being must be evolving. But this evolution of our consciousness to a superconscience or supreme of itself is possible only if the Inconscience which is our basis here is really itself an involved Superconscience; for what is to be in the becoming of the Reality in us must be already there involved or secret in its beginning. Such an involved Being or Power we can well conceive the Inconscient to be when we closely regard this material creation of an unconscious Energy and see it labouring out with curious construction and infinite device the work of a vast involved Intelligence and see, too, that we ourselves are something of that Intelligence evolving out of its involution, an emerging consciousness whose emergence cannot stop short on the way until the Involved has evolved and revealed itself as a supreme totally self-aware and all-aware Intelligence."⁷⁰

⁷⁰ Ibid, p. 1053

Lecture 10

Sri Aurobindo and the evolution of consciousness

At the end of the cycle,⁷¹ what I would like to do is review a couple of philosophical questions. The objective of this course is to think about a philosophy of evolution and get some tools for such thinking. A few thinkers, seers, and poets in the last century have compared the goals of poetry, philosophy, and religion and have spoken about poetry and philosophy being very closely aligned with respect to their aims. Those philosophers and poets who speak this way are not the academic philosophers, they are the most creative minds who are most eager to grasp truth and to vivify knowledge. As Whitehead in the beginning of this course put it, their aim is to create the values that give civilization its life and its meaning. Those are the aims of poetry and philosophy at their best, and at other times perhaps mythology and religion, and at others occultism and magic.

When we speak about the possibility of a philosophy of evolution, we do so because the question of evolution is prominent in our consciousness. The fact that Sri Aurobindo, in the last ten years of his life – after thirty years of his spiritual practice, after his realization of the Overmind – devoted an enormous amount of energy to this question of evolution is exemplary of this trend. As I have said a few times, the new chapters of *The Life Divine*, written in 1939-40, are all about evolution - from the most structural mechanistic concepts to the most psychological to the most spiritual - in an endeavor to bring the question of evolution to its fullest possible formulation at this stage of human development. One of the important tools we come across in the philosophy of evolution is these many chapters, about twelve chapters of *The Life Divine*, that dwell upon this question. What is it? How does it work? Why? Why is nature functioning in this way? So his last writings are an indication that this is a worthwhile endeavor: to learn to think

⁷¹This is an edited transcription of the recorded lectures 1-12 in the University of Human Unity series, *The Philosophy of Evolution* (1), 2008.

about evolution and to know really what it means. It's not just a concept in a textbook or magazine, or something that only biologists do in laboratories; it's an approach to understanding existence. It is a framework for grasping the true meaning of reality, for learning to think correctly, to be conscious on all the levels of our consciousness in a focused, intentional way.

As Bergson discovered in the early part of the last century, this understanding of reality, and especially this question of evolution, requires the evolution of consciousness. It is not something that is well understood by ordinary mind. It's something that began to be understood only in the last hundred and fifty years. In the last fifty years, it has taken enormous strides. That is why you read about it in magazines like 'The Economist' and 'National Geographic' and hear about it in Auroville. It's not finished in terms of either the understanding of it or the process itself. The philosophy of evolution could therefore be a key to many things, not least of all the revitalization of our civilization, and the unleashing of meaningful creative forces. That was certainly Sri Aurobindo's idea. By understanding this reality we bring into play new powers of it; we make evolution more conscious of itself by aligning ourselves with its meaning, its value.

The question of value is paramount in pursuing a philosophy of evolution. What are our values, what is valuable, what is really worthwhile, and what gives it its value? That is one perspective that the question of the philosophy of evolution brings into focus. When we ask this question, the whole range of the human being's attempt to understand himself comes into view, and that is the subject of philosophy proper. The proper focus of the study and pursuit of philosophy is the human being's understanding, and so when we study Plato and Aristotle and Thomas Aquinas and Locke and Hume we also are trying to come to terms with questions like, What is knowledge? What is the purpose of life?, How does it work?, How does mind play in this picture?, Where does it come from?, What is its scope? The scope of mind and of life, the functions of matter... how is it that we can become

an enlightened vital, physical mind capable of blessing nature and humanity and functioning at this almost extraordinary divine level, in this material envelope, as we have seen the Mother do? The Greeks were interested in that question because there were many mystics in Greek civilization and the idea of dematerializing and rematerializing the body and ascending through all the planes of consciousness and transforming matter were there in the Neo-Platonic schools of thought as well. The idea of Christ was that there could be a kind of human existence that was divine, the Word made flesh, when there is some kind of meeting and union of Spirit and Matter.

This way of thinking about the origin and the purpose and how it all works is basically the subject of philosophy, and it is also where philosophy shades into religion and into poetry. It is a thoughtful and inspired human endeavor to raise consciousness towards truth. Then we come to some basic questions in philosophy that are affected by the science of evolution. It is said, for example, that Darwin has made obsolete the concept of essentialism. Let's think about that for a minute. We were exposed to this concept in the ideas of Aristotle, and they had their origins in Plato. Eastern philosophy is permeated with the idea of essentialism. What it means is that when we know something, what we know is not the matter of the thing, but the idea of the thing. We know abstractly what it is. We recognize this filming object sitting on the tripod here, and we know that it is not a living being from outer space invading our private club here. It is a camera on a tripod. It has the form and function of a camera, and in our mind, it is an exact example of the idea we have of a digital recording device. When we know that, we do not know the mechanisms as they are turning, we do not know in detail the chip which is in there and how the chip stores the light signals the camera picks up. Nor do we know how elephants and societies work. We just know that they are and we know what they are, abstractly. Similarly we know what languages are, and we have been studying more or less how they work. But, if you really think about it, we don't know how they work at all. Language is a miraculous thing. We can analyze it and determine its structures, but the fact is that language is quite an

extraordinary phenomenon. Evolutionary life is an extraordinary phenomenon. The process of variation, diversification, and selection, which we have learned are going on constantly, is an extraordinary phenomenon.

We can give those processes names; when we see patterns being repeated, we recognize them whenever they occur. Thus we have a kind of abstract formal knowledge of what things are, and Aristotle calls this the Form. We know the form elephant, we know the form healing, we know the form ionic poetry, but how the healing takes place, how the poetry is created, how the shrew becomes the elephant or the pig, we don't really know any of these things in their actual becoming. We know their essence theoretically. This word *essence* is what we grasp of the meaning of the thing; the form of the thing known is the essence. Aristotle calls it form, essence, definition; and so, for modern science the idea of evolution was shocking, because there was this idea that elephants don't evolve, they just *are*, human beings *are*, apple trees *are*, what they have always been. They are species or genera - another word for essence, which comes from *eidos*, idea. The *eidos* is the species, the type, the form, the essence of the thing, and it's what we know. Our minds are full of these concepts or forms, and we think that's what things are. The object is a particular material form of the spiritual essence.

Then evolutionary science comes along and takes a good look at embryonics and paleontological changes through eons of time and finds out that ninety-nine point nine per cent of the living species-ideas-forms that everyone thought were eternal no longer exist on earth. Not only do we find out that all these forms that were thought to be eternal no longer exist on earth, but they each were created by processes from previous forms. It was a very gradual incremental and continuous process of becoming and not a collection of permanent essences. This is shocking to the mind which for thousands of years has been convinced that the forms known are the unchanging essence of the things; and that what we know is the reality. So, in the Twentieth Century, from the

shock waves of evolutionary theory philosophers began to point out that this concept of knowledge, this “knowing” that we are so proud of, actually is not what’s there, and it’s not what’s happening. What’s happening is *process*.

If we look at the history of philosophy, we find that in Aristotle’s time his idea was that process, or matter, is totally determined by form. The form preexists eternally, in the spiritual or mind dimension. What the bird is and what the bird does, from the time of its birth to the time of its death, is due to the form of the bird. Birds do what they are supposed to, they know how to build nests, they know how to feed their young. The doctor knows how to heal, and from the moment he meets the patient until the patient is cured is known as healing. These forms are attracting and propelling what exists into its natural mode. Aristotle calls that form the Final Cause, and everything that happens along the way is either a material cause or an efficient cause. When you strike the match to the candle it starts to light the room, but striking the match to the candle isn’t what is really, essentially happening; lighting the room is really what’s happening. This lighting is fulfilling the purpose of the candle, which is why we struck the match to start with and put it to the wick. We wanted the candle to light up the room. The form or final cause is always there in the fulfillment of that which is becoming.

The Greek society at the time was in the process of becoming the ruler of the world, and everything else just fell into place because that was its destined pattern; and Alexander the Great was its primary instrumental cause. But he was just the instrument for the realization of that totality of being which was the Greek civilization or the Roman civilization or whatever empire happens to be dominant. Then, in the midst of the British Empire, we found ourselves faced with the idea, the evolutionary scientific idea, that things are not these forms which are just in our minds, these are abstractions. What things actually are is determined from moment to moment by their evolution, and every pattern of behavior is a product of previous patterns of behavior, every structure is the product of previous structures and functions. These ever changing

behaviors and patterns are transmitted through heredity, through language, through culture and behavior. The phenotype finds its niche and the genotype tends to evolve in a way that preserves that behavior in that niche, but only temporarily. Permanence is an illusion. The empires fall.

There is a mysterious correspondence between the behavior we see and what the genes do. The behavior actually selects the genes, the genes don't select the behavior. But the genes create and preserve the structure, which makes the behavior possible. And if that behavior works then those genes get passed on. If that behavior doesn't work then those genes don't get passed on. But, they also make possible a wider range of behaviors than are manifested under a particular set of conditions. There may be some other behaviors that work better, and then another genetic pattern can be selected, because those members of the group that manifest the better pattern are more successful, and those that manifested the other pattern drop out. Somehow there is constant communication going on between structure and form. But what is determining it? Darwin says it is one fundamental principle: it is that nature selects those types that are best able to sustain themselves in the context of the existing environment, in the contingent web of life. As soon as some variation can sustain itself more successfully, it replaces those that are less successful.

The flight of birds, for example, - which in itself is as amazing as language - and the climbing of primates, came about through a process of variation, adaptation, selection, from the crawling of lizards and reptiles. So what do we do with this new information? We are told by the Darwinians, and they are very strong on this point, that essentialism has been shown to be a false doctrine by this new understanding. There are no eternal preexistent essences or forms that cause things to be what they are. There are ideas that we have about things, which are derived from empirical observation and analysis, known as forms (structures) and essences (definitions). And as a result, a major change in philosophy comes about, - which was already prefigured by rationalistic

philosophy – and the idea becomes dominant that we create concepts because of some relationship we have with things through perception. We construct the concepts, and we test them and measure them against the patterns that we perceive, and compare them with what other people perceive. And finally we agree about the nature of the forms and behaviors that exist. Moreover, by an equally mysterious reversal of the processes of mind, we manipulate the material forms that we understand to produce electronic weapons systems and information systems and to spin textiles from the fuel oil deposited by the fossils of earlier animals. Knowledge acquires the power to determine what the material forms of things shall become. (Passing these things along to new generations, as established traditions, sometimes conveys the erroneous impression that such knowledge and behavior are eternal and right.) Then Bergson, Heidegger, Sri Aurobindo, and others (mainly critical theorists and phenomenologists), tell us that we are only creating a framework of understanding that we agree upon and that gives us certain powers, but this knowledge is not at all the truth of that world of process that is ongoing, that is ever changing. There is the real creative force of life which has produced consciousness out of matter, which some believe has the possibility of evolving a more dynamic, direct and luminous truth consciousness which would enable us to really know our world and be completely in sympathy with it, because we are continuous with it. Then we would not be abstracting it and formulating it and operating with formulas; we would be one with the world itself because we are in fact that physical, vital, mental force.

Thus, thinking human beings (especially philosophers) have discovered that our wonderful rational mentality is not the whole picture, and that it doesn't tell us the truth about things much of the time. It merely enables us to manipulate things; but our manipulations are only partly successful. We have discovered that our manipulations may actually threaten our existence. Mind has evolved in the human being and it has found ways to extend our longevity; it is helping us to successfully reproduce our type, but it has limits: it doesn't prevent us from behaving in quite unacceptable ways at times, and some of those

unacceptable behaviors begin at certain points to threaten our survival, along with the survival of many other species.

And so, two things began to emerge in 20th Century thought. One was a critique of knowledge based upon scientific understanding moving away from essentialism toward process, and a fundamental questioning of consciousness itself. What is it, how does it work? Since Aristotle everyone assumed that consciousness was just a part of nature that has emerged in mind and knows the world it perceives in terms of forms. Lo and behold, however, those forms are not telling us the truth about the world we perceive, they are only concepts. This world is changing every moment and we have some responsibility as members of it to make decisions about nature; we don't have to just accept that one civilization is from time to time rising and another one is taking it over and it's falling, and we live according to the patterns of our societies' established values as best we can and take the consequences. Then we are replaced by another set of patterns and entities, causing us a bit of a shock, and suddenly we step back from all that and question its meaning. And we question the limitations of our ability to understand its meaning.

And then, science does what Sri Aurobindo predicted it would do; it starts to focus on meaning. Then we have physicists like Roger Penrose especially today, and previously Schrödinger and others, asking this question of consciousness, and then we get in the last ten years or so a philosopher like Daniel Dennett who wrote a book called *Darwin's Dangerous Idea*, discussing these things which I am now discussing, and saying incredibly interesting things from a philosophical standpoint about evolution and the limitations of consciousness. He also wrote a book called *Consciousness Explained* and another called *Freedom Evolves*. So we have a so-called ultra Darwinian, someone who is absolutely against the notion of essentialism, saying words like, "There is simply no denying the breathtaking brilliance of the designs to be found in nature. Time and again biologists, baffled by some apparently futile or maladroit bit of bad design in nature have eventually come to see that they have

underestimated the ingenuity and sheer brilliance and depth of insight to be discovered in one of mother nature's creations. ...Darwin shows us how to climb from "Absolute Ignorance" to creative genius without begging any questions, but we must tread very carefully. Among the controversies that swirl around us, most if not all consist of different challenges to Darwin's claim that he can take us all the way to here from there, without invoking anything beyond mechanistic..."⁷² That is the theory of natural selection, nature's ability to operate unconsciously but not unintelligently throughout millennia from the unconscious to this consciousness and beyond. This they say, the ultra Darwinians, *is enough for us to know*: that mind is there in matter, that life is there in matter, that evolution is a process of nature bringing out step-by-step through processes of cognition, of transfer of information between the genome and the environment through the phenome exactly what can happen within the constraints of what has already happened and what needs to happen next. And, according to these ultra Darwinians, there is a constant ongoing process of adaptation between these three levels, of the environment, the phenome, and the genome through exchanges of information. And so in 1973 we get an evolutionary biologist named Lorenz treating the most fundamental level of materialization as a level of cognition. And so, this insight that Sri Aurobindo had when he was questioning evolution in 1920, and which he eventually formulated in great detail in 1940, this idea that matter, life and mind are emerging from the basic fundamental structure of nature, has been generally accepted now. *The question is, whether process itself can explain it adequately.*

The reason that this question arises is because if we step back from process and look at **what** it produces - not just how it produces it but, if we look at what it produces, and we look at something like language which is such an extraordinary phenomenon or, if we look at something simpler like the forty completely unrelated paths evolution has taken to develop eyes, to develop sight. Sight is not one continuous evolution. Many different experiments in nature have produced sight. And we look

⁷²Dennett (1995), *Darwin's Dangerous Idea*, p. 74

at the fact that every exchange of energy, of information, from the simplest organism to the most complex, can be shown to be a process of cognition, because information does get exchanged and it does influence behavior. Then we think, perhaps, cognition is itself so extraordinary, sight is so extraordinary, the fact that it happens, that beings, that organisms see and behave according to information they accumulate at every level, we have to ask the question, what is it that is evolving here? Is it only structure, process, and function, or is it consciousness that is evolving here? Are all of these different levels of physical, vital, and mental forms and structures and behaviors producing consciousness, or are all those forms produced by consciousness for its progressive formation and emergence?

Then we find out that philosophy has been asking this question for quite a long time. I brought the other day Locke's book, but I find that the essential passages have been quoted by Dennett in his book *Darwin's Dangerous Idea*. So, just to think for a minute of how this question was viewed by John Locke in 1690, he said this, "If there must be something eternal", now let us think philosophically about that; must there be something eternal? Well things have to start somewhere, everything has to start somewhere. How can there be something starting somewhere if there was not already something started before it? Something does not come from nothing. Matter cannot come from nothing, it must come from something. Or it must have always been there. So this idea of eternity has been around for a long time. It makes the most common sense. So, "If there must be something eternal, let us see what sort of being it must be. And to that it is very obvious to reason that it must necessarily be a cogitative Being. For it is impossible to conceive that ever bare incogitative matter should produce a thinking intelligent being. It is as impossible to conceive of that as that nothing should of itself produce matter."⁷³ How can nothing produce anything? And how can matter itself, just matter, electrons, and protons, produce intelligence? Intelligence is of a different order than matter, it is about ideas, memory and conscious purposeful action. It is not just about

⁷³ Ibid, p. 26

exchanges of energy and reproductive life – yet another order of nature. So this argument has been around since 1690, and then we see Sri Aurobindo on the overhead screen saying, “An original creative or evolutionary power there must be: but, although Matter is the first substance the original and ultimate power is not an inconscient material Energy; for then life and consciousness would be absent since Inconscience cannot evolve consciousness, nor an inanimate Force evolve life. There must be therefore, since Mind and Life also are not that, a secret Consciousness greater than life-consciousness or mind-consciousness, an energy more essential than the material energy. Since it is greater than mind it must be a supramental Consciousness-Force; since it is a power of essential substance other than Matter, it must be the power of that which is the supreme essence and substance of all things, a power of the Spirit.”⁷⁴

If we conceive of something powerful enough to create matter, which is necessarily eternal, then that power, says Sri Aurobindo, is what produces material, vital, mental, spiritual and Supramental consciousness. It was there from the beginning and it will be there at the end. So all of the forms and concepts that were there along the way are not what is eternal. All of those structures and forms are changing all the time. However beautiful and powerful the artistic expressions and philosophical formulations... The only thing that is eternal is Spirit. But it can create progressively higher and more perfect embodiments of itself. And it is not other than Nature. Matter and spirit are the same.

Purusha surrenders to Prakriti because it is that energy in motion that has the power to create everything. The Purusha can only sanction what is. The Self is. Its energy is what it can become. To make the transition from mind to supermind, it is absolutely necessary for the mind level of consciousness-force to give itself up, to abdicate, because that energy of mind is not the next stage of evolution; it doesn't have the creative power or the truth. It has an organizing capacity that has served the survival of humanity fairly well up to now. And it has evolved much

⁷⁴ Sri Aurobindo (1970), *The Life Divine*, p. 705

faster than the lower forms of life. Each level of evolution is more complex, rapid and diverse than the previous. We are capable of uniting our consciousnesses with all of Nature which is only One. If we abdicate the idea of formal difference, we can allow to emerge a continuum of consciousness that operates from an impersonal center. It is a Supramental center that will create for itself bodies that experience themselves as an infinite diversity of that one power, truth, beauty. If it was there at the beginning, then it will inevitably be there at the end – in a Form, according to Sri Aurobindo.

There are processes of evolution elaborated by Sri Aurobindo that Darwin was not aware of, that Dennett is not aware of, but he is pushing the envelope, when he says that freedom evolves, and because the ethical mind can't solve all its problems, another level of intelligence must emerge. He says that one of the signs of this is the ability of human beings to impose their will on their own group functioning in order to change behavior in a way that is not necessarily beneficial to the reproduction of the individual. This is not a normal way to ensure survival and improvement of the species according to traditional Darwinism. It's possible to sacrifice the normal methods of species survival in order to achieve a more harmonious social structure. For example, voluntary celibacy and isolation from ordinary social relations; women choose, or governments choose to have fewer children, Sri Aurobindo chooses to spend forty years in isolation to write *Savitri* and *The Life Divine*. At some point the powers that he achieved through the processes of Yoga must become the norm. The sacrifices that human beings and society make along the way are indications of new norms to come. Every philosophical, poetic and psychological effort of transformation that human beings make is an indication of the emergence of those new norms, under evolutionary stress. Otherwise known as the will of the divine. The divine is not something outside; it is totally involved from the inside, willing everything from inside. Knowing that, one can cease to be judgmental, because one thing is not better than another. This is not better than that; this is that. It's possible to affirm everything. This was Nietzsche's message: why don't we say Yes,

and rise above the nonsense instead of repressing everything to which we say No. It's possible to affirm the material, the sensuous, the intellectual, and idealism gets turned up-side-down, everything is divine – and Sri Aurobindo insists that it is necessary to develop the philosophical mind to its limits in order for the new level of consciousness to descend; but then it has to abdicate. Otherwise it is only turning around in its already evolved vital mental patterns. The poetic philosophical affirmation of existence carries one to the point where one can abdicate to another potential.

The concept of descent, of imposing a higher level of consciousness on the lower members or planes, and bringing the lower to a higher level has been going on in nature all along. The phenome, the behavioral type seeks more energetic and efficient patterns and imposes them on the lower established patterns, then natural selection steps in and assimilates the new behavior to the genome. There are processes of evolution that Sri Aurobindo introduces that have not been addressed by Darwinians but they do not contradict the Darwinian perspective. The Darwinians would feel threatened by the idea that there is a universal vital intelligence pressing on the physical to bring out its potentials, or a universal mental pressing on the vital, because that is not something most of us can see. But Sri Aurobindo is suggesting a fundamental change in the scientific way of knowing, and that scientific thinking learn to step back from its dependence on sensory impressions and data, and apply the same rigor to psychological data from inside so that it can discover the mechanisms, and “see” more comprehensively and directly what is going on.

Now we have the scientist Roger Penrose suggesting that science needs to evolve new methodologies in order to solve the problem of consciousness. (He is the physicist who discovered the ‘big bang’.) This question of evolution is for biology, philosophy, psychology and spirituality. It is a process of reconnecting all the material and spiritual levels of consciousness. Discovering the processes of evolution is putting those levels of consciousness in contact with each other and

establishing the continuum of consciousness and enhancing creative evolutionary processes. Sacrifice means putting these levels in contact with each other and allowing them to ignite new potentials. This would make it possible to make choices with a full consciousness of the potentials and constraints of all the levels of being and nature. Thus, the philosophy of evolution can possibly further the project of the transcendence of the human.

Appendix 1

Physics and the Philosophy of Evolution

Nature's Dialectic

Few among humanity have yet undertaken the challenge, availed the opportunity, transcended their conventional mental formulas, and achieved the clarity of intention necessary to see the vision of Sri Aurobindo. Fewer have gone so far as to integrate his vision into their thought and life, and so to understand it fully, to grasp its historical significance, and to realize its force, its evolutionary potential. Therefore it can truly be said that Sri Aurobindo belongs to the future.⁷⁵ And yet his vision, and the thought forms and literary expressions that he created to embody it, are vibrant within the epoch of human achievement known as the 20th Century – that moment in time and the history of civilization that can be understood today as the culmination of the rational cycle of human development and the beginning of a suprarational, integral cycle - like a subtle ether flowing through everything. It is a momentous vision, perhaps immeasurably important for the future of humanity, and for this reason it is one that we wish to bring into focus here, and to put in perspective.

Abundant are the signs of that evolutionary transition of which Sri Aurobindo was the harbinger, indications of the integral and supramental structures of consciousness that he said would emerge. But the emergence of creative thought formations, and of new evolutionary forms, takes time. And very little is known about this process of emergence in any case. It is not common knowledge, and it is not the way we have been conditioned to understand how evolution happens. The signs, nevertheless, are most evident in the subtler, more spiritual thought of the century, but clearly perceptible also in the arts and literature, and in the human sciences – philosophy, psychology,

⁷⁵The Mother, "Sri Aurobindo does not belong to the past nor to history. Sri Aurobindo is the Future advancing towards its realization..." (April 2, 1967)

sociology. They are progressively apparent in the startling theoretical discoveries of the natural sciences, in physics, evolutionary biology, ecology. But there, in the mental disciplines, the fundamental aporias and enigmas of thought that permeate the epoch are still, as always, the questions of man, of consciousness, of our ability, or inability, to know and conquer our human limitations. We are faced with the mystery of our own evolution. The new consciousness, which might help us penetrate the mystery, has not yet emerged, but its immanent emergence is presaged by new perspectives, flashes, intensities, forebodings, and irrepressible facts, and by the failure and breakdown of old structures.

In an epoch of incomparable human cruelty, depravity and destruction, paired with almost miraculous advances in the products and processes of global technological civilization, when the human has become godlike in its mastery of nature, humanity is being forced, at last perhaps, to seek hope shrouded in its most desperate moment of deficient self-revelations, and the self-realization of its shadow identity as creator of the culture of nihilism and extinction.⁷⁶ It is perhaps inevitable, then, that we rewrite Sri Aurobindo, that we revision and rethink his vision as the background of this passing age of scientific and technological hubris, and that we narrate the necessary emergence of the trans-human. For, as he saw and wrote in the first few pages of his massive literary life-work, early in the century, there is an urgency, a necessity, and a hope:

“...today we see a humanity satiated but not satisfied by victorious analysis of the externalities of Nature preparing to return to its primeval longings. ...to convert our twilit or obscure physical mentality into the plenary supramental illumination, to build peace and a self-existent bliss where there is only a stress of transitory satisfactions besieged by pain and emotional suffering, to establish infinite freedom in a world which presents itself as a group of

⁷⁶ See Arthur Kroker (2004), *The Will to Technology and the Culture of Nihilism* and Frederic Bender (2003), *The Culture of Extinction: Toward a Philosophy of Deep Ecology*

mechanical

necessities...

"... all Nature seeks a harmony, life and matter in their own sphere as much as mind in the arrangement of its perceptions. The greater the apparent disorder of the materials offered or the apparent disparateness, even to irreconcilable opposition, of the elements that have to be utilized, the stronger is the spur, and it drives towards a more subtle and puissant order than can normally be the result of a less difficult endeavour.⁷⁷

But the dialectic of progress that evolutionary Nature utilizes to achieve her ends is a difficult lesson for us; it is one that we would in fact prefer to ignore. Or, perhaps it is because of our ignorance and unwillingness to learn, that she chooses to use this method. However that may be, it is by negation that she affirms and by destruction that she creates, as Sri Aurobindo stated unequivocally in those first pages, in 1914:

In our world error is continually the handmaid and pathfinder of Truth; for error is really a half-truth that stumbles because of its limitations; often it is Truth that wears a disguise in order to arrive unobserved near to its goal.⁷⁸

The world today presents the aspect of a huge cauldron of Medea in which all things are being cast, shredded into pieces, experimented on, combined and recombined either to perish and provide the scattered material of new forms or to emerge rejuvenated and changed for a fresh term of existence. ...For the march of Nature is not drilled to a regular and mechanical forward stepping. She reaches constantly beyond herself even at the cost of subsequent deplorable retreats. ...And these self-exceedings are the revelation of that in her which is most divine or else most diabolical, but in either case the most puissant to bring her rapidly forward towards her goal.⁷⁹

⁷⁷ Sri Aurobindo (1970ed.), *The Life Divine*, pp.1-5

⁷⁸ Ibid., p.12

The First World War was then upon us, soon to be followed by the Holocaust and Hiroshima. These were followed, in turn, by the liberation of many new nations formerly subjugated by Colonialism, and the ascendancy of the civilization of affluence, with Germany and Japan, ironically, near the top. It appears that the will to power evolved rapidly in these cases, from a lower, inhuman and destructive form into a form of creativity, efficiency and excellence. Perhaps a reverse paradox might be represented historically by the invention and widespread use of antibiotics during and after World War II, followed by the exponential increase of the human population from 2.5 billion in 1950 to over 6 billion in 2000. (It had already almost doubled from 1.6 billion at the turn of the century, largely in response to the spread of mechanized agriculture.) If, as a result of the population explosion, pollution, global warming, and the depletion of natural resources this “progress” were to bring an end, or a rapid decline, to our species, we might see a parallel with the end of the age of the dinosaurs, which apparently made room for the rise of primates just a few million years later. This pattern of reversals would apparently illustrate and be the justification for what Sri Aurobindo terms, poetically, Nature’s harsh economy, and yet the indication of a process of change that is neither random nor arbitrary, but is rather characterized by order and purpose. It is one in which Nature sets up the oppositions necessary to create the circumstances, structures, conditions for the emergence of that next stage of development, without which her processes could not continue to evolve. Therefore it might be said, to reaffirm the theoretical insights of critical thought with Sri Aurobindo’s more holistic, spiritual vision: if the apparent oppositions are terms of Nature’s intentional process, there are in fact no oppositions.

Could it perhaps then be said, that the extraordinary developments of scientific thought, knowledge, and technology in the 20th Century have set the stage for the further evolution of consciousness, not so much by what they have accomplished for humanity and the Earth, but rather by having created the possibility of such catastrophic circumstances that

⁷⁹ Sri Aurobindo (1970ed.), *The Synthesis of Yoga*, p.1,6

survival can only be achieved by overcoming and transcending this “intelligent human” with his righteous violence? Such speculation is at least not out of place in the context of the English literary traditions of Blake and Huxley to which Sri Aurobindo’s prophetic writing might also be said to belong.

Uncertainty and Complementarity

In 1914, Sri Aurobindo wrote, in the context of his speculations about the development of scientific thought, “It will be evident that essential Matter is a thing non-existent to the senses and only... a conceptual form of substance; and in fact the point is increasingly reached where only an arbitrary distinction in thought divides form of substance from form of energy.”⁸⁰ He was making a comparison between the truths of the ancient Vedic knowledge and the new discoveries of modern science, for the purpose of illustrating a possible trend of the latter towards “a Monism which is consistent with multiplicity, towards the Vedic idea of the one essence with its many becomings.”⁸¹ And then, within a few short paragraphs, he formulated the integral knowledge, towards which science only now, at the beginning of the next century, tentatively begins to move: “Life...begins to reveal itself as an obscure energy of sensibility imprisoned in its material formulation; and when the dividing ignorance is cured which gives us the sense of a gulf between Life and Matter, it is difficult to suppose that Mind, Life and Matter will be found to be anything else than one Energy triply formulated, the triple world of the Vedic seers. Nor will the conception then be able to endure of a brute material Force as the mother of Mind.”⁸² As we shall see, this understanding is still a step before which scientific thought hesitates. And the one beyond, the final destined leap, it does not yet dare to think: “The Energy that creates the world can be nothing else than a Will, and Will is only consciousness applying

⁸⁰ Sri Aurobindo, op.cit. (LD), p.14

⁸¹ LD, p.14

⁸² LD, p.14

itself to a work and a result.”⁸³

Einstein had published the special theory of relativity in 1905 and then developed the general theory of relativity in 1915, definitively altering the traditional conceptions of Space and Time. Commenting on the subsequent development of quantum theory in the 1920s, Capra (1982) says, as if to confirm Sri Aurobindo’s prediction, “The most important consequence of the new relativistic framework has been the realization that mass is nothing but a form of energy.”⁸⁴ And the Nobel physicist, Ilya Prigogine (1984), currently at the forefront of cosmic evolutionary theory, writes: “Quantum mechanics teaches us that... on all levels reality implies an essential element of conceptualization.”⁸⁵

The seminal discoveries of quantum mechanics in that theoretical “golden age” of physics in the 1920s, made by Einstein, Bohr, Planck, Heisenberg, Dirac, Schrödinger, etc., have been described by Hawking (2001) as “a new picture of reality” in which, “No longer did any particles have a definite position and speed. Instead, the more accurately one determined a particle’s position, the less accurately could one determine its speed, and vice versa.”⁸⁶ Thus it became uncertain whether matter is something stable and solid or something fluid and in motion. And this “uncertainty principle,” as formulated by Werner Heisenberg, has become perhaps the most often cited, because the most profoundly disturbing, discovery of scientific thought in the 20th Century. Let us therefore ask why this should be so, and how it happens to be especially significant in the context of Sri Aurobindo’s evolutionary vision.

The theory of relativity presented a conception of the universe in which Space was not a boundless container lasting through an eternal Time, in

⁸³ LD, p.14

⁸⁴ Fritjof Capra, *The Turning Point*, p.90

⁸⁵ Ilya Prigogine and Isabelle Stenger (1984), *Order Out of Chaos*, p.226

⁸⁶ Stephen Hawking (2001), *The Universe in a Nutshell*, p.12

which material objects move and change in predictable ways. Rather it replaced this static view of the physical universe, which had been held by scientific and philosophical thought at least since Plato and Aristotle, with the view that space and time are relative dimensions of a universe in which everything is in motion. As Capra puts it: "In such a framework space and time are intimately and inseparably connected and form a four-dimensional continuum called "space-time". ... Physicists have now lived with relativity theory for many years and have become thoroughly familiar with its mathematical formalism. Nevertheless, this has not helped our intuition very much. We have no direct sensory experience of the four-dimensional space-time."⁸⁷ Even physical reality can only be grasped conceptually.

Moreover, with the development of quantum mechanics, which presents a picture that Capra says "clashes with our deepest intuition of reality," subatomic particles, or quanta of matter-energy, do not really appear to exist except insofar as they are defined by observers. Matter is a conceptual form of energy as Sri Aurobindo said. And according to quantum physics, the behavior of this matter-energy is determined by non-local events, as if the "particle" were spread throughout great expanses of space as a "wave" and the existence and behavior of this energy - of which everything is made - is known only through a mathematics of probability. Thus, the principle of uncertainty, defines a dynamic world that appears to be, as formulated by Heisenberg, "a complicated tissue of events, in which connections of different kinds alternate or overlap or combine and thereby determine the texture of the whole."⁸⁸ Contrary to the conventional, analytical, and mechanistic paradigm, the part is determined by the whole, rather than the other, common sense, way around.

Hawking, who in the late 60s helped to prove, along with Roger Penrose, that space-time had a beginning with the Big Bang and that

⁸⁷ Capra, op.cit. p.89

⁸⁸ Capra, op.cit., p.81

the universe is continually expanding and evolving, says that Einstein himself refused to accept these bounded implications of his theory, preferring the classical view of a static, essentially unchanging and eternal universe. And of the implications of quantum theory, Einstein reportedly said, "It was as if the ground had been pulled out from under one, with no firm foundation to be seen anywhere, upon which one could build."⁸⁹

And so, the universe at bottom is not mechanical and not made up of well defined building blocks (atoms, quarks, etc.), with cause and effect relationships that determine the whole in predictable ways, but is rather a whole which determines its parts through an interconnected web of vast energy fields, and this whole appears to be somehow self-determining, and unpredictable by our way of understanding. Several troublesome implications seem to follow. One is that, if the universe is not deterministic and predictable, it must be ultimately random, chaotic, irrational; another is that, if we can neither know nor determine the structures and processes of Nature with certainty, then we haven't much reason for hope. It would seem that we are led necessarily to a position of existential nihilism. And in fact, the 20th Century has often been characterized as such an irrational age of nihilism, by the apparently waning light of its rational intellect.

However, our mathematical understanding of the physical universe has also led to a very impressive sort of control, extraordinarily effective within certain limits, and we are able to construct quite an orderly "picture" or "concept" of this uncertain "reality." As Hawking says, the quantum laws of physics have been "the basis of modern developments in chemistry, molecular biology, and electronics, and the foundations for the technology that has transformed the world in the last fifty years,"⁹⁰ referring of course to such devices as digital computers and laser technologies. In addition, the visionary inclinations of many

⁸⁹ Capra (1996), *The Web of Life*, p. 39

⁹⁰ Hawking, *op.cit.*, p.26

scientists has tended more and more toward the conclusion that the universe is not only orderly and self-determining, but it evolves in ways that tend to produce consciousness. It would seem that Niels Bohr, in formulating the principle of complementarity as a corollary to the uncertainty principle, had given a nod to the idea with which we began: that the contrariness of Nature is quite meaningful in its results. Bohr's principle suggests that both terms of any empirical duality, such as particle/wave, position/velocity, space/time, structure/process, order/chaos, stability/change should be recognized, measured, and considered holistically as multiple aspects of a unity. Thus the uncertainty principle leads us in fact to a more complete and complex grasp of reality.

Evolution and Consciousness

Many scientists, including especially Capra, Prigogine, Penrose, and others who have applied the principles of uncertainty and complementarity, analogically and metaphorically as well as computationally, in the domains of physics, chemistry and biology, have been led to the paradoxical proposition that apparently stable structures in nature are the product of processes of constant energy transformations at all levels: subatomic, molecular, and biological. According to Prigogine's theory of dissipative structures, all physical systems, from electromagnetic fields to molecules, weather systems to amino acids, cells and organs to organisms, are self organizing and self replicating as a result of energy flowing through their systems. The structures of physical systems reproduce their own stable forms through constant structural interactions with their environment. Such self-making, self-sustaining structural transformations are on-going within and between organisms, according to this theory, exhibiting patterns of deliberate response and reaction, memory and choice, which are thought to be parallel to and indicative of mental processes, or intelligent behavior. The ability of organisms to co-exist and co-evolve, through processes of non-local energy-field causation, whether at the quantum, biological or mental levels, and at moments of extreme

disequilibrium to diversify or evolve new structures and processes of ever greater complexity and viability, is leading some scientists to conclude that the organization of life itself is in fact a kind of mental process. As Capra puts it in *The Web of Life – A new scientific understanding of living systems* (1996):

To understand the nature of life from a systemic point of view means to identify a set of criteria by which we can make a clear distinction between living and nonliving systems. ...the recent formulations of models of self-organization and the mathematics of complexity indicate that it is now possible to identify such criteria. The key idea of my synthesis is to express those criteria in terms of the three conceptual dimensions, pattern, structure, and process. ...I propose to understand autopoiesis, as defined by Maturana and Varela, as the pattern of life; ...dissipative structure, as defined by Prigogine, as the structure of living systems; ...and cognition, as defined by Gregory Bateson and more fully by Maturana and Varela, as the process of life. ...Autopoiesis (self-making) and cognition (process of perceiving and knowing) are two different aspects of the same phenomenon of life. In the new theory all living systems are cognitive systems, and cognition always implies the existence of an autopoietic network.^(p.160)

Although these theories are still based on observable physical, chemical, and biological processes, and as such remain materialistic and structural theories, it is clear that the wave-fluctuations of this line of thought, from Heisenberg and Bohr to Capra, Prigogine, and Penrose, approach that knowledge of which Sri Aurobindo spoke, and perhaps herald a time when, as he said, scientific knowledge would reach conclusions similar to those of the Vedas. It seems that matter, life, and mind are in fact beginning to be understood as different formulations of one unknown Energy. But a strong reductionist bias is still evident, even in Capra's attempts to formulate a synthetic, unified theory of life and mind, and even more so in Hawking's positivist version of

anthropocentrism.⁹¹ Maturana and Varela, two scientists of consciousness whose work forms a substantial part of Capra's synthetic point of view, state the bias unequivocally: "as scientists we can only deal with unities that are structurally determined."⁹² And in their interpretation of apparently conscious linguistic behavior, they state the qualifying paradigm "to operate in languages is to operate in a domain of congruent, co-ontogenic structural coupling."⁹³ What this means is that what the observer perceives and interprets as linguistic behavior in animals is accompanied by a parallel but dissimilar underlying set of nervous and muscular system behaviors characterized as "structural coupling." For these scientists, there is ultimately no difference between structural coupling and conscious behavior or "cognition;" the latter is reduced to the former.

The next step that Sri Aurobindo predicted, "at which stage of development the conception of material Force as the mother of Mind would not be able to endure," has obviously not occurred. If it had, instead of reducing consciousness to structural coupling or an emergent quantum event, there would be the realization that Consciousness was the first principle, from which the structures and processes of the universe proceed, rather than being the penultimate

⁹¹ Hawking (op. cit. p.85) gives this rather droll characterization of the anthropic principle: "While it may be that intelligent beings can evolve without galaxies and stars, this seems unlikely. ...The anthropic principle says that the universe has to be more or less as we see it, because if it were different, there wouldn't be anyone here to observe it." And although he frequently equates the physical universe with "reality," he qualifies his position as a positivist in a manner that is pertinent here (p.59): "From the viewpoint of positivist philosophy, one cannot determine what is real. All one can do is find which mathematical models describe the universe we live in. It turns out that a mathematical model involving imaginary time predicts not only effects we have already observed but also effects we have not been able to measure yet nevertheless believe in for other reasons. So what is real and what is imaginary? Is the distinction just in our minds?"

⁹² Humberto Maturana and Francisco Varela (1987), *The Tree of Knowledge – The biological roots of human understanding*, p.96

⁹³ *Ibid.*, p.211

outcome of those physical processes. This next step would make it evident that the reason why stable structures appear to evolve in matter by means of self-determining processes, and why patterns or forms persist without change even though everything of which they are composed is constantly changing, is that there is a Will in them, infinitely diverse and omnipresent, a will of self-manifestation and self-being, and not a merely physical evolutionary dynamism, whether inherently one of chance/necessity or of chaos/order.

This is a form of understanding that is of course more characteristic of philosophy than of science, especially if we look back to the time, in ancient Greece, and perhaps as early as Vedic India, when the distinction between these modes of thought was not yet clearly defined. Aristotle's works are burdened throughout with the attempt to understand the relationship between form, which is apparently unchanging, and matter, energy, motion, which are the elements of change from potential to actual form. And at that time the distinction was also not being made between form as such, and form as *concept* derived from perceptions and observations of the material world; the idea that the material world is separate from mind, or consciousness, had not yet intervened in the history of knowledge. For Aristotle, who was a biologist, mind was a form of nature whose activity was to know and understand other forms like itself. And especially important to the history of knowledge, the idea had also not yet intervened that our measurements of matter, energy, motion – and on a macro level, patterns, structures, processes - tell us what “reality” is. For the ancient thinkers, the world of stable forms and values that we experience, and that the invisible physical micro-world of change upholds, was the reality. This inversion of the known and unknown, and the reduction of form to mechanical forces or subatomic measurements and mathematical probabilities has been precisely the work of modern scientific thinking.

It would be ironic indeed, if as Hawking and others seem to half-seriously suggest, the universe had necessarily to evolve from an

invisible world of Platonic forms (extradimensional space) into a world of Platonic solids (mathematical constants), and through all the forms of carbon-based life and mind, in order for physicists to be able to now reduce everything to a knowledge framework of probabilities, parallel universes, and imaginary dimensions of time – a version of the “anthropic principle”. But Hawking’s colleague, Roger Penrose, seems to have reached a considerably more serious point of departure in the search for ultimate principles, and one quite pertinent to our present concerns. In his book *Shadows of the Mind – A search for the missing science of consciousness* (1994), Penrose states:

If Einstein’s general relativity has shown how our very notions of the nature of space and time have had to shift, and become more mysterious and mathematical, then it is quantum mechanics that has shown, to an even greater extent, how our concept of *matter* has suffered a similar fate. Not just matter, but our very notions of actuality have become profoundly disturbed. How is it that the mere counterfactual *possibility* of something happening – a thing which does not actually happen – can have a decisive influence on what actually *does* happen? There is something in the mystery of the way that quantum mechanics operates that at least seems much closer than is classical physics, to the kind of mystery needed to accommodate mentality within the world of physical reality. I have no doubt myself that when deeper theories are at hand, then the place of mind in relation to physical theory will not seem so incongruous as it does today. ^(p.419)

Penrose argues in his book that consciousness – which he defines as awareness, understanding, and will or intention – will be explainable when physical science itself evolves its own theories and methods beyond their present limitations, because consciousness is beyond any possibility of computational understanding. And yet he believes that the ground of consciousness will ultimately be found at the interface between the world of quantum effects and the world of biological structures. While still adhering to the reductionism and structuralism

characteristic of the scientific paradigm, he is able to foresee the possibility of an entirely new understanding yet to come: "For physics to be able to accommodate something that is as foreign to our current physical picture as is the phenomenon of consciousness, we must expect a profound change – one that alters the very underpinnings of our philosophical viewpoint as to the nature of reality."⁹⁴

Perhaps what this means is that the next quantum leap in consciousness, one foreseen by Sri Aurobindo as necessary in order to resolve the dilemmas of matter and mind, will be an even more disturbing paradigm shift than the ones already brought about by the new physics of the 20th Century. In Sri Aurobindo's interpretation of the Vedic cosmology, everything in the universe, from the physical to the mental plane, is an expression of the will-force of consciousness. Therefore it is possible that the non-computational interface between the quantum world and cellular structures theorized by Penrose, which brings about the "objective reduction" of quantum reality to the real-time world of phenomena that we know, is one level where consciousness-will can indeed, in some sense be "found." Penrose's intuition is that the phenomenon of objective reduction will be related to quantum gravity; although his intuition that this phenomenon must be or require a Force is probably true, it is likely to be a Force that is as yet unknown to science. To observe this phenomenon will require a movement of consciousness toward such an understanding, which is not currently a movement characteristic of science. At the beginning of his discussion of this possibility of scientific knowledge, Sri Aurobindo said, "If modern Materialism were simply an unintelligent acquiescence in the material life, the advance might be indefinitely delayed. But since its very soul is the search for Knowledge, it will be unable to cry a halt; as it reaches the barriers of sense knowledge and of the reasoning from sense knowledge, its very rush will carry it beyond and the rapidity and sureness with which it has embraced the visible universe is only an earnest in the conquest of what lies beyond, once the stride is taken

⁹⁴ Roger Penrose (1994), *Shadows of the Mind*, p. 406

that crosses the barrier.”⁹⁵

The “stride” that Sri Aurobindo hints at here, and which he refers to in the same context as being “attainable by a supreme effort of consciousness” but also as “escaping the grasp of our thought and speech, instruments which proceed always by the sense of difference and express by the way of definition” implies another methodology than the one normally employed by science, which is always based on observation of the external world, on “sense-knowledge”, and on reasoning from that knowledge, even if it is sometimes accompanied by a more global phenomenon of inspired seeing. The proposed methodology entails a process often referred to by Sri Aurobindo as a transformation of consciousness. Vedic knowledge apparently used that method and was of that type. But it was at the same time not “other worldly.” It was, however, “spiritual knowledge” achieved by a supramental consciousness which can know the world from within. It is knowledge of the Self, which is one with everything in time and space because everything is essentially That. This is obviously a rather mystical view of things, and yet the philosophy of evolution proposed by Sri Aurobindo, in which consciousness and force, spirit and matter are complementary, non-dual polarities at each level of existence – physical, vital, mental, and spiritual – has as its foundation precisely this premise. And such a theory is in fact consistent with the underlying connectedness and evolutionary self-determination of everything in the universe, as proposed by quantum physics. What is missing from that theory is the principle that would explain the emergence of a highly ordered self-determining physical universe in the first place, and then the emergence of life and consciousness from such a material base. Sri Aurobindo’s basic argument for the evolution of consciousness in a material universe is that it could not happen from an inconscient base; consciousness must be a fundamental principle of the universe itself in order for it to emerge; it is “a self-involution of Consciousness in form and a self-evolution out of form.” Therefore the fundamental complementarity of consciousness-force provides an explanation at

⁹⁵LD, p.13

every level of the order that exists in the observable universe, and of every other complementarity that we can identify as being essential to an adequate understanding of things. In this vision of reality, the ancient and modern dualities that have always presented insoluble paradoxes, such as form and substance, stability and change, chaos and order, life and death, self and other, are finally resolved into unities rather than contraries.

Do the current limitations of our knowledge therefore indicate something essential about the limited nature of "mind," or do they indicate an essential indeterminacy and consequent unknowability in the nature of "reality?" Both of these questions, surprisingly, must be answered in the negative. The sense mind, the rational mind, and the inspired imagination, etc., as we know them, are limited, but the limitations are evolutionary, temporal, structural limitations; they are not essential. And the indeterminacy of processes, beyond the conservation of structural histories and patterns of adaptation, especially at the point of disequilibrium where novel forms can emerge, does not make them essentially unknowable simply because they are non-computational. Reality is infinitely complex but it is also only What Is; the evolutionary structures at every level of matter, life, and mind are only structures *of consciousness*, knowable by the Self through Identity. But that requires the evolutionary emergence of another potential of consciousness beyond mind, which Sri Aurobindo chose to call "supermind." In his descriptions of its characteristics, he speaks of the necessity of realizing in oneself an extraordinary force of concentration, an absolute stillness, and a cancellation of the mind's normal patterns of reactions and responses to external stimuli. It is a process in which the personal will merges with the universal Will, the individual mind with universal Consciousness.

So, if we ask then, Is reality Finite or Infinite? the Unchanging or Change? Being or Time? Spirit or Matter? Substance or Form?, the answer in every case is "both," although any particular definition will depend on the point of view, just as Heisenberg said. And after a

century of unparalleled advances in both scientific and spiritual knowledge, a scientific mind like Prigogine's can therefore now think, along with the mystic philosopher:

Each great period of science has led to some model of nature. For classical science it was the clock; for nineteenth-century science, the period of the Industrial Revolution, it was an engine running down. What will be the symbol for us? ...In some of the most beautiful manifestations of sculpture, be it in the dancing Shiva or in the miniature temples of Guerrero, there appears very clearly the search for a junction between stillness and motion, time arrested and time passing. We believe that this confrontation will give our period its uniqueness.⁹⁶

During the brief period of historical time known as the 20th Century, as the discoveries of the new physics were taking place, and Sri Aurobindo's discovery of the supermind was being formulated, in the forefront of the "human sciences" also many barriers of consciousness were receding: Husserl wrote *The Idea of Phenomenology* in 1907 and *The Crisis of European Sciences and Transcendental Phenomenology* in 1933. Freud published his theory of the three-fold structure of mind in 1923, Heidegger published *Being and Time* in 1927, Whitehead's *Process and Reality* was published in 1929. And one could go on: Merleau-Ponty's *Phenomenology of Perception* in 1945, Jean Gebser's *The Ever-Present Origin* in 1949/53, Sri Aurobindo's later works, 1940-50, Heidegger's writings on technology and language, 1950-60, to the newer physics of the 1960s, the post-structural philosophies of the 1970s, the quantum biology of the 1980s, and the super-technology of the 1990s.

As we shall perhaps see, if we explore in greater detail the explosion of ideas that characterized this epoch in the development of thought, within the context of the century's equally dramatic "outer" developments, the arc of the entire project of human consciousness

⁹⁶ Prigogine & Stenger, op.cit., p. 22-23

throughout may appear to have been delimited by one evolutionary formula for human advancement: to reconcile Spirit and Matter. To achieve the realization of their unity; to consciously perceive the stillness and force that combined constitute the essence of the infinite energy of existence; and to know directly by a "supramental consciousness" - one with the world it perceives - that unity and diversity, identity and difference are the principles of all Being in Time, could be the outcome of the pursuit of Knowledge, as Sri Aurobindo indicated. But for it to be so, he said, the human mind "must traverse the degrees which our inner consciousness imposes on us and, whether by objective method of analysis applied to Life and Mind as to Matter or by subjective synthesis and illumination, arrive at the repose of the ultimate unity without denying the energy of the expressive multiplicity."⁹⁷ A study of the 20th Century in relation to the vision of Sri Aurobindo should reveal the progress made along this arc of potential human development, and also give us a clear indication of the distance still to be traversed if we are to complete the journey.

⁹⁷LD, p.13

Appendix 2

Biology and the Philosophy of Evolution

The theory of evolution

When Sri Aurobindo was a student in London and later at Cambridge, Herbert Spencer was one of the most influential philosophers of the day. He coined the term “survival of the fittest” and taught that material evolution was universal, developed according to necessary laws, and was caused by the persistent pressure of an infinite and absolute force; T. H. Huxley was a prominent intellectual of the same time and place, a widely read and listened to defender of Darwin against the religionists, and president of the Royal Society, who concluded that human evolution was more dependent on ethical mentality than physical prowess, and coined the term “agnosticism” to accommodate the spirit of skepticism. And when Sri Aurobindo returned to India and was a young professor of French, Henri Bergson’s philosophy of matter and mind (1896), and of intuition and creative evolution (1907) became influential in both Europe and America, and eventually garnered him the Nobel Prize. At the same time, the “monistic” philosophy of matter and mind of the contemporary German evolutionary biologist and philosopher, Ernst Haeckel, was published in English in 1900. This author and his work were among the very few sources ever cited by Sri Aurobindo. One may conclude from such historical observations that it was at least no accident, and perhaps it was the time-spirit of the early 20th Century and its destiny, that Sri Aurobindo – gifted scholar, poet, and philosopher – would bring to his interpretation of Vedanta the most interesting and revolutionary thought of the day. The time-spirit was avidly seeking a synthesis of knowledge about the physical universe, the phenomenon of life, and the workings of the mind. The theory of evolution provided a context for such a synthesis.

Let us enquire then, more specifically, into the nature of the questions posed by this compelling urge that defined the thought of the early 20th

Century. In addition to existence itself, and the physics of the material universe that we have already reviewed, two of the most engrossing and intractable questions of science and philosophy flowed – then and now – from two fundamental intuitions that we take for granted: the evolution of life from simpler forms at earlier periods to more complex forms at later periods, and the emergence of human consciousness – or mind, in the forms of mental awareness, thought and knowledge. We must presume, as believers in either spiritual or scientific materialism - and the interconnectedness of all things - that the latter phenomena of consciousness are the product of the same processes that produced the infinite varieties of the former: living organisms endowed with such perceptual faculties as sight and hearing. Based on innumerable observations of the structures of life, from the fossil record to the genetic code, Darwin's general theory of evolutionary descent through variation and natural selection has repeatedly been confirmed as the most reasonable explanation for the emergence of all the structures of life, including mind. The problem remains, however, that we do not directly observe the mechanisms of evolution that have theoretically operated during vast periods of deep time, and we also have not been able to observe a direct relationship between the physico-chemical processes and structures underlying life and the less observable phenomenon of consciousness. Our knowledge is still incomplete, and the mind-body problem is therefore just as interesting and vexing for both science and philosophy today as it was for Aristotle, Aquinas, and Descartes.

What is most amazing, perhaps, is that these questions of origin and process have been with us for so long, and yet we still do not have satisfactory answers, in spite of such truly extraordinary advances in science and technology as particle accelerators, laser spectrometry, the electron microscope, and the information micro-processor. The processes of human consciousness that have apparently evolved in the last 40,000 years, and especially since the 5th century BCE, created tools of observation that greatly enhance our powers of induction and deduction, and yet we are not able to adequately observe and explain

the most essential and fundamental aspects of our own nature. Such intractable problems of perception and understanding have been among the primary goads of modern philosophy and science at least since Hume's *Treatise on Human Nature* (1734), Kant's *Critique of Pure Reason* (1781), and Hegel's *Phenomenology of Mind* (1807), but these were neither the first attempts nor the last to grasp the profoundest mysteries of life and mind. Among the earliest were Aristotle's *On the Generation of Animals* and *On the Soul* (340 BCE), Parmenides' *On Nature and Being* (5th Century BCE), and in India the *Darsanas* of the 6th and *Upanishads* of the 8th Centuries BCE. These attempts perhaps marked the beginning in recorded history of the human will to understand what still vexes and compels us some 3000 years later. The more recent attempts are well known: Darwin, Huxley, Bergson, Sri Aurobindo, and the many imminent neo-darwinians of our era.

There has been progress, without a doubt, since *The Origin of Species* (1858) and *The Descent of Man* (1871). Much that was not known then, about both the fossil record and genetics, has been discovered in support of Darwin's theory during just the last quarter of the 20th Century. And since the heliocentric theory of Copernicus displaced the Ptolemaic and Platonic cosmology, immeasurable gains have been made in comprehending the universe as a whole. There has been a sort of vertical, qualitative, convergence of knowledge and technology, since the 17th Century and especially in the 20th Century, that has made most of the observable workings of nature and the cosmos transparent to human inspection and analysis. And there has also been, at the same time, a horizontal, quantitative, dissemination of knowledge that has informed humanity on a much larger scale than ever before. How many thousands would have read the works of Isaac Newton in his lifetime, or perhaps tens of thousands the works of Darwin, while today millions read the works of Richard Dawkins and Stephen J. Gould? And what better indication of the perpetual quandaries presented by the facts of evolution and consciousness than the disagreements between those two contemporary experts on Darwin's theory, Dawkins and Gould? ⁹⁸

⁹⁸ Without wishing to express a bias toward either of these two authorities and their

Darwin himself expressed the essential quandaries in *The Origin of Species* (6th Ed. 1872), although many of the speculations with which he attempted to address the issues as he perceived them may have less weight today, in the light of more concrete contemporary evidence and technologically informed speculation; yet the basic problem was already clear – evolution implies a degree of complexity that exceeds our intellectual grasp. In his first treatises he opened the debate between the strict gradualist and adaptationist views, so popular today,

respective points of view, it may nonetheless be shown that Gould has given a poignant summary of their differences as he sees them, in an article titled “Darwinian Fundamentalism” (*The New York Review*, June 12, 1997), where he writes, “A movement of strict constructionism, a self-styled form of Darwinian fundamentalism, has risen to some prominence in a variety of fields, from the English biological heartland of John Maynard Smith to the uncompromising ideology of his compatriot Richard Dawkins... Amid the variety of their subject matter, the ultra-Darwinists share a conviction that natural selection regulates everything of any importance in evolution, and that adaptation emerges as a universal result and ultimate test of selection’s ubiquity. The irony of this situation is twofold. First..., Darwin himself strongly opposed the ultras of his own day. ...Second, the invigoration of modern evolutionary biology with exciting nonselectionist and nonadaptationist data from the three central disciplines of population genetics, developmental biology, and paleontology makes our pre-millennial decade an especially unpropitious time for Darwinian fundamentalism – and seems only to reconfirm Darwin’s own eminently sensible pluralism.”

In all fairness, we should point out that each party to this debate derives his position from Darwin: the Dawkins school of thought characterized by “gradualism” derives from the Darwin who wrote in *The Origin of Species, Part Two*, concerning the imperfection of the fossil record, “If numerous species, belonging to the same genera or families, have really started into life at once, the fact would be fatal to the theory of evolution through natural selection. For the development by this means of a group of forms, all of which are descended from one progenitor, must have been an extremely slow process; and the progenitors must have lived long before their modified descendents” (6th Ed. p. 83).

Gould uses paleontological evidence to show that many species have in fact rapidly emerged in the fossil record relatively soon after major extinctions, but says that this doesn’t contradict the Darwin who wrote, in the conclusion of “Origin”, “I am convinced that natural selection has been the main but not the exclusive means of modification (p.303),” and Darwin also wrote, apparently in support of the pluralistic stance, “It is, however, probable...that the world at a very early period was subjected to more rapid and violent changes in its physical conditions than those now occurring;

and the more pluralist interpretations of his theory of variability, inheritance, and natural selection championed today by the critics of strict adaptationism. And because they continue to embroil the best minds in the field, it is necessary to examine this divergence for a better understanding of the on-going dilemma. What are the factors that determine the processes of variation and adaptation, what is the relationship between the genome of a creature and its environment, what is the relationship between genetic processes and the vast

and such changes would have tended to induce changes at a corresponding rate in the organisms which then existed" (p.90). The pattern of such explosions of new species following major extinctions has been amply documented, and provides an important basis for Gould's theory of "punctuated equilibrium."

For example, we read in Encyclopedia Britannica, "The division of geologic history into a succession of eras and periods is hallmarked by major changes in plant and animal life— the appearance of new sorts of organisms and the [extinction](#) of others. Several mass extinctions have occurred since the Cambrian. The most catastrophic happened at the end of the [Permian Period](#), about 248 million years ago, when 95 percent of species, 82 percent of genera, and 51 percent of families of animals became extinct. Other large mass extinctions occurred at or near the end of the [Ordovician](#) (about 440 million years ago, 85 percent of species extinct), [Devonian](#) (about 360 million years ago, 83 percent of species extinct), and [Triassic](#) (about 210 million years ago, 80 percent of species extinct). ... Like other mass extinctions, they were followed by the origin or rapid diversification of various kinds of organisms. The first mammals and dinosaurs appeared after the late Permian extinction, and the first vascular plants after the Late Ordovician extinction. (From **evolution**. (2008). Encyclopædia Britannica. *Encyclopædia Britannica 2007 Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.)"

But, as the ultra-Darwinian philosopher Daniel Dennett stubbornly argues in his book *Darwin's Dangerous Idea* (1995), against the Gould-Chomsky position that language, by virtue of the rather sudden universal appearance of its structures in the human species, along with an equally sudden increase of brain size, may not necessarily be the result of gradual adaptation, "No matter how suddenly the punctuation occurred that jogged our ancestors abruptly to the right in Design Space, it was still a gradual design development under the pressure of natural selection – unless it was indeed a miracle..." Here Dennett, in his anti-religious passion, seems to forget that the issue is between gradualism and a relatively sudden process of speciation, not between natural selection and miraculous intervention! In any case, as Herbert Spencer wisely observed more than a century ago, such questions cannot be settled on the basis of either empirical data or logical deduction, which says more about the limitations of

diversity of phenotypic structures and behaviors that we observe in nature? Are our mental creations really a product of genetic chemistry? These are questions that remain open to exploration and discovery today, long after Darwin and Sri Aurobindo pursued them.

Darwin tentatively observed and speculated, more than a century ago, that: "Changed conditions of life are of the highest importance in causing variability, both by acting directly on the organization, and indirectly by affecting the reproductive system. It is not probable that variability is an inherent and necessary contingent, under all circumstances. The greater or less force of inheritance and reversion determine whether variations shall endure. Variability is governed by *many unknown laws*, of which correlated growth is probably the most important. Something, but how much we do not know, may be attributed to the definite action of the conditions of life. Some, perhaps a great, effect may be attributed to the increased use or disuse of parts. The final result is thus *rendered infinitely complex*." ⁹⁹

The causes of variation, in Darwin's strikingly perceptive view, are governed by unknown laws and are infinitely complex, and he admitted that we are not able to observe precisely what ultimately determines the outcomes of the processes of evolutionary change. We should remember that at the time of his writing nothing was known about the genome and the mechanism of heredity was attributed simply to the "germ plasma". But, nevertheless, he confidently asserts that the net result of the unknowns, however complex, may be attributed in general to the process of "natural selection": "Over all these causes of Change, the accumulative action of Selection, whether applied methodically and quickly, or unconsciously and slowly but more efficiently, seems to have

our knowledge than about the theory of evolution. If, however, the argument is between the processes of adaptation and natural selection versus the existence of innate structural principles, then as we have seen in the previous discussion of physics, it will in all probability be best resolved if we understand them as necessary complementarities.

⁹⁹ Charles Darwin, *The Origin of Species* (6th ed., 1872), p. 73.

been the predominant Power.”

From the processes that he was able to perceive, from the fossil record, from domestic breeding practices, and from embryonic development, etc., he could infer a sort of final cause or first principle that governs the process as a whole. We too can easily observe the same continuous patterns of variation and descent among the phyletic order of species, and we may assume there is one overriding law of nature to which such variation may be attributed. What Darwin meant by his omnipresent power of Natural Selection was clearly explained by him in the chapter of the same title in the *Origin* where he provides a framework for all future discussions of his hypothesis: “Let it also be borne in mind how infinitely complex and close-fitting are the mutual relations of all organic beings to each other and to their physical conditions of life; and consequently what infinitely varied diversities of structure might be of use to each being under changing conditions of life. Can it, then, be thought improbable, seeing that variations useful to man have undoubtedly occurred (*in the laboratory*), that other variations useful in some way to each being in the great and complex battle of life, should occur in the course of many successive generations (*in nature*)? If such do occur, can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others, would have the best chance of surviving and of procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would be rigidly destroyed. This preservation of favorable individual differences and variations, and the destruction of those which are injurious, I have called Natural Selection, or the Survival of the Fittest.”¹⁰⁰

The sequence of events, life forms, lineages “ascertained by us” through empirical observation of the natural world throughout deep time is a closely related and interdependent descent of organisms, structures and functions, and because we perceive in it a continuum of outcomes, to which a great variety of natural processes have apparently

¹⁰⁰ *Ibid*, p. 121-122

contributed, we may confidently assign to this amazingly vast complexity of natural processes, along with Charles Darwin and his followers, one overarching explanatory term for the plethora of variations observed: the law of Natural Selection. After 150 years of unparalleled scientific progress Darwin's comprehensive intuition of the matter still holds good. We know that evolution occurs, and we know that there is a process of selection at work in Nature. Moreover, Nature has, or perhaps "is", the power to select *optimal* structural solutions to her problems of survival; she often apparently also prefers beautiful, as well as useful, solutions – to name only two of the many qualities we value in nature; she has produced a vast variety of designs, from the simplest to the most complex, often with faculties of sight and hearing, and with intelligence and power, with the apparent purpose to preserve and replicate her creations of beauty and utility; and she has finally produced highly intelligent (if not quite omniscient), mental beings, capable of knowing and communicating, with depth and eloquence, her amazing achievements. With this scientifically validated understanding we may find ourselves confirmed in our sense of connectedness with all living things, as well as in our justifiable awe at the grandeur of the natural world in which our lives are grounded.

The similarity between the so-called theological argument from design, - which has been used by scientists and philosophers for millennia to prove the existence of an invisible intelligent agency (God) on the basis of an otherwise unexplainably wonderful and infinitely complex world of nature, - and this more economical scientific view which simply attributes the hidden power to Nature itself, is outstandingly evident in the work of Darwin, as well as in that of his more recent followers. Natural Selection serves the ultimate aim of survival just as Intelligent Design serves the ultimate aim of divine perfection. The ultra-Darwinists, such as Richard Dawkins (1982) and Maynard Smith (1999), for example, explain the "mutual organization of all organic beings", as a function of the most fundamental processes of life from the simplest level of genes and chromosomes (the genome), extending out to the most complex structures and behaviors (the phenotypes) of organisms

and societies (see fn. 10). From these principles we may infer a vastly unified field of infinitely diverse specialization. These principles of unity, mutuality, and purpose in nature seem to express most accurately the true meaning and spirit of Darwinism; the full understanding and description of their processes is not only a central scientific objective of the school but an inspired mission to reveal the meaning of life. And, as such, it has indeed endowed nature with both meaning and purpose.

The philosophical tendency to settle on an economical and natural simplification of causes and explanations, based on close observation, rather than to add additional magical, spiritual, or speculative explanations, characterizes the modern, scientific approach to knowledge in general. It is this tendency which most distinguishes it from the theological approaches of the eras that preceded it – from Plato to Galileo. Occam's razor, or the law of parsimony, has been applied rigorously and effectively in both science and philosophy, since it was first formulated in the 13th century "Cathedral Schools" of Europe, to eliminate supernatural causes and enhance the importance of observable and demonstrable causes.¹⁰¹ Thanks to ecclesiastical thinkers like Occam and Aquinas, the way was prepared between 1200 and 1600 for the full emergence of rationality and empirical science. It was an important, and at times perhaps obsessive, aim of Darwin and his followers, to establish the superiority of this way of thinking to the religious and supernatural thought still prevalent at the time they wrote. But the mysteries of nature's processes, and the limitations of both the empirical and the speculative approaches to ascertaining certain knowledge, still remained just behind the assurances of the rational mind, and they remain today.

¹⁰¹ **Occam's razor**, also called the **law of economy**, or **law of parsimony**, the principle stated by [William of Ockham](#) (1285–1347/49), a scholastic, that *Pluralitas non est ponenda sine necessitate*; "Plurality should not be posited without necessity." The principle gives precedence to simplicity; of two competing theories, the simplest explanation of an entity is to be preferred. The principle is also expressed "Entities are not to be multiplied beyond necessity." (From **Ockham's razor**. (2008). Encyclopædia Britannica. *Encyclopædia Britannica 2007 Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.)

Sri Aurobindo and Darwinism

In a series of short essays originally published in his monthly journal *Arya* around 1920-21, Sri Aurobindo stated, in an abbreviated form, many of the fundamental problems of evolutionary theory which he later considered more systematically in his major work, *The Life Divine* (1940). For example, in "Involution and Evolution", he said this: "The Western idea of evolution is the statement of a process of formation, not an explanation of our being (*note the juxtaposition of "process" and "being"- terms that will define the fundamental problem of philosophy*). Limited to the physical and biological data of Nature, it does not attempt except in a summary or superficial fashion to discover its own meaning, but is content to announce itself as the general law of a quite mysterious and inexplicable energy. ...The ancient (*Eastern*) idea of evolution was the fruit of a philosophical intuition, the modern is an effort of scientific observation. Each as enounced (*sic*) misses something, but the ancient got at the spirit of the movement whereas the modern is content with a form and the most external machinery. ...The modern scientist strives to make a complete scheme and institution of the physical method which he has detected in its minute workings, but is blind to the miracle each step involves or content to lose the sense of it in the observation of a vast ordered phenomenon. But always the marvel of the thing remains, one with the inexplicable wonder of all existence... We know that an evolution there is, but not what evolution is; that remains still one of the initial mysteries of Nature."¹⁰²

This sums up the critical question with which we have begun this exploration, in order to put Sri Aurobindo's philosophy of evolution in the context of contemporary scientific theory. Although there was a certain openness to the convergence of Western scientific and Eastern philosophical approaches to knowledge during the last decades of the 20th Century in the fields of natural science, this openness was certainly not the case a hundred years earlier. And in fact, as Sri Aurobindo

¹⁰²Sri Aurobindo, (1st ed. 1971). *The Supramental Manifestation and Other Writings* (2nd Ed.), p. 138.

pointed out in his essay, the evolutionary thought of the 19th Century had contributed significantly to “that entire victory of the materialistic notion of life and the universe which has been the general characteristic of the age...” and with it the important corollary effect of “the failure of the religious spirit and the breaking up of religious beliefs.”¹⁰³

This dichotomy of approaches – the spiritual and material, or philosophic and scientific – constitutes the basis of the critique with which Sri Aurobindo began his philosophical endeavor to synthesize Eastern and Western thought on the basis of a deep reflection upon both “scientific” and “spiritual” truths. He sought a synthesis and a method by which to handle not only the problems inherent in the theory of evolution and the scientific method, but also a way to unify the basic principles of the structures of consciousness and the cosmos, as a solution to the two types of problem that we have identified – the need for a more adequate understanding and explanation of the phenomena of nature, and the need to discover and develop a power of consciousness better equipped to attain such knowledge. In other words, he sought to advance both the subjective (knowing) and the objective (known) realms of knowledge.

He began his reflections, as we find in another of his abbreviated essays titled simply “Evolution”, with what appears to be a broad visionary grasp of both extremes of the problem – the mechanics of evolution on one end, and their principles and meaning on the other end, and he then proceeded to define the unifying solution. For example, he wrote: “The general idea of evolution was the filiation of each successive form or state of things to that which preceded it, its appearance by process of out-bringing or deploying of some possibility prepared and even necessitated by previous states and previous tendencies. Not only does a form contain the seed of the form that reproduces it, but also the seed of the possible new form that varies from it. By successive progression a world-system evolves out of the nebula, a habitable planet appears in an uninhabitable system, protoplasmic life emerges by some yet

¹⁰³ Ibid, p.320.

unknown process out of Matter, the more developed grows out of the less developed organism. ...Force in Matter is the unconscious Goddess who has worked these miracles by her inherent principle of natural adaptation and in the organism by the additional machinery of heredity; by natural selection those species which reproduce new characteristics developed by adaptation to the environment and favourable to survival, tend to propagate themselves and remain; others fall back in the race of life and disappear." ¹⁰⁴

Then, after this seemingly accurate, contemporary account of the matter, corresponding closely to the views of both Spencer and Darwin, he provided a critical supplement based on the perspective of Indian philosophy: "In the first place, the materialist theory of evolution starts from the Sankhya position that all world is a development out of indeterminate Matter by Nature-Force, but it excludes the Silent Cause... it conceives the world as a sort of automatic machine which has somehow happened. ...Force in indeterminate Matter without any Conscious-Soul being all the beginning and all the material of things, Mind, Life and Consciousness can only be developments out of Matter and even only operations of Matter. ...More and more the march of knowledge leads towards the view that the three (*Matter, Life, Mind*) are different forms of force, each with its own characteristics and proper method of action, each reacting upon the other and enriching its forms by the contact. ...If this be the truth, then the action of evolution must be other than has been supposed. For example, the evolution of Life in Matter must have been produced by a Life-principle working in and upon the conditions of matter and applying to it its own laws, impulses, necessities. ...The other idea of a still mightier Mind working in Life and upon it has not yet made sufficient way because the investigation of the laws of Mind is still in its groping infancy." ¹⁰⁵

In order to build his case for this more philosophical perspective on

¹⁰⁴ Ibid, p.320.

¹⁰⁵ Ibid, p.316.

evolution which was also adopted by Bergson and Whitehead, and has in fact become more and more widely accepted today, Sri Aurobindo listed a number of exceptions to what has become known as the strict adaptationist interpretation of Darwin. Sri Aurobindo's early observations actually support the more pluralistic stance and broader perspective on the question, which has recently been popularly championed by a diverse group of scientists at Harvard such as Gould, Lewontin, and Mayr. Then, Sri Aurobindo provided the metaphysical perspective that turned the theory on its head. Intelligence, consciousness, mind are not the outcome of a blind mechanical process; they are principles inherent in matter from the start. And with this move, Sri Aurobindo also turned the conventional spiritual point of view, along with the materialist point of view, on its head as well, in much the same way that Marx had done with the spirituality of Hegel, and Nietzsche with the idealism of Plato and Kant. Let us review and deconstruct Sri Aurobindo's criticism of the questionable ideas of evolution and his own speculations, as he formulated them in 1920.

The dualistic dilemmas

1. Survival of the fittest - "The idea of the struggle for life tends to be modified (*in the contemporary theories of 1920*)... This modification is a concession to reviving moralistic tendencies... Not struggle for life only. The real law, it is now suggested, is rather mutual help or at least mutual accommodation. Struggle exists, mutual destruction exists, but as a subordinate movement, a red minor chord, and only becomes acute when the movement of mutual accommodation fails and elbow-room has to be made for a fresh attempt, a new combination."^{106,107}

¹⁰⁶ Ibid. p. 320.

¹⁰⁷ John Maynard Smith and Eors Szathmary, (1999). *The Origins of Life*, p. 17. In his 1999 book on the origins of life, the British biologist John Maynard Smith gave a compelling analysis of the beginnings of cellular evolution, which features *cooperation* as an inherent principle of the most basic and original formative structures of life: "We think that the first objects with the properties of multiplication, variation, and heredity were

2. Heredity - "Equally important are the conclusions arrived at by investigators into the phenomena of heredity that acquired characteristics are not handed down to posterity and the theory that it is chiefly predispositions that are inherited; for by this modification the process of evolution begins to wear a less material and mechanical aspect; its source and the seat of its motive-power are shifted to that which is least material, most psychical in Matter." ¹⁰⁸ "...The propagation of acquired characteristics by heredity was too hastily and completely asserted; it is now perhaps in danger of being too summarily denied. Not Matter alone, but Life and Mind working upon Matter help to determine evolution. ...When the mind-world and life-world are ready, they are poured out freely on fit recipients. This is the reason why it is predisposition that is chiefly inherited. The psychical and vital force in the material principle is first impressed; when that has been done on sufficient scale, it is

replicating molecules, similar to RNA but perhaps simpler, but not informational because they did not specify other structures. If evolution was to proceed further, it was necessary that different kinds of replicating molecules should cooperate, each producing effects helping the replication of others. We argue that, if this was to happen, populations of molecules had to be enclosed within some kind of membrane, or 'compartment'....In existing organisms, replicating molecules, or genes, are linked together end to end to form chromosomes... This has the effect that when one gene is replicated, all are. This coordinated replication prevents competition between genes within a compartment, and forces cooperation on them." Richard Dawkins, who follows a similar theoretical path in order to establish a case for a direct causal relationship between the smallest and the largest components of life, from the gene to group behavior, provides a corresponding image of a network of co-dependent life: "Loci in germ-line chromosomes are hotly contested territory. ...the weapons with which they won, and the weapons with which their rivals lost, are their respective phenotypic consequences. These phenotypic consequences are conventionally thought of as being restricted to a small field around the replicator itself, its boundaries being defined by the body wall of the individual organism in whose cells the replicator sits. But the nature of the causal influence of gene on phenotype is such that it makes no sense to think of the field of influence as being limited to intercellular biochemistry. We must think of each replicator as the centre of a field of influence on the world at large. (Richard Dawkins, (1982). *The Extended Phenotype*, p.237.)

¹⁰⁸ Op. cit. p. 316

ready for a general new departure and an altered heredity appears.”¹⁰⁹ (The evolutionary philosophy of Konrad Lorenz in 1970 seems to support this idea, as does the Chomskian theory of pre-existent cognitive structures such as language.)¹¹⁰

3. Gradualism and punctuated equilibrium - “Instead of slow, steady, minute gradations it is now suggested that new steps in evolution are rather effected by rapid and sudden outbursts, outbreaks, as it were, of manifestation from the unmanifest. Shall we say that Nature preparing slowly behind the veil, working a

¹⁰⁹ Ibid. p. 320

¹¹⁰ “...the idea that some motivated behaviours are the result of innate programs manifested in the nervous system had been proposed by James and McDougall in the late 1800s and early 1900s. These early instinct approaches fell into disfavour during the 1920s because of their proponents’ inability to discriminate between instinctive and learned behaviours and because of the realization that labeling an observed behaviour as instinctive did not explain why the behaviour occurred. In Europe, however, a group of biologists interested in the evolutionary significance of animal behaviours kept the concept alive and continued to study the genetic basis of behaviour. Three of these researchers (the Austrians [Karl von Frisch](#) and [Konrad Lorenz](#) and the Netherlander [Nikolaas Tinbergen](#)) were awarded a Nobel Prize in 1973 for their work on the subject. They were early entrants in the field of study known as [ethology](#), which studies the behaviour patterns of animals in their natural habitat. Ethologists argue that the evolutionary significance of a particular behaviour can best be understood after a taxonomy of behaviours for that species has been developed as a result of observation in nature. They propose further that the significance of a behaviour is often clearer when observed in the context of other behaviours of that animal. Ethologists use naturalistic observation and field studies as their most common techniques. The research conducted by the ethologists showed that some behaviours of some animal species were released in an automatic and mechanical fashion when conditions were appropriate. These behaviours, known as [fixed-action patterns](#), have several salient characteristics: they are specific to the species under study, occur in a highly similar fashion from one occurrence to the next, and do not appear to be appreciably altered by experience. Furthermore, the stimulus that releases these genetically programmed behaviours is usually highly specific, such as a particular colour, shape, or sound. Such stimuli are termed key stimuli or sign stimuli and when provided by a conspecific organism (a member of the same species) are known as social releasers.” (From **motivation**. (2008). Encyclopædia Britannica. *Encyclopædia Britannica 2007 Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.)

little backwards, working a little forwards, one day arrives at the combination of outward things which makes it possible for her to throw her new idea into a realized formation, suddenly, with violence, with a glorious dawning, with a grandiose stride? And that would explain the economy of her relapses and her reappearances of things long dead. She aims at a certain immediate result and to arrive at it more quickly and entirely she sacrifices many of her manifestations and throws them back into the latent, the unmanifest, the subconscious.”¹¹¹

4. Materialism and Idealism – “Again, the materialist theory supposes a rigid chain of material necessity; each previous condition is a co-ordination of so many manifest forces and conditions; each resulting condition is its manifest result. All mystery, all element of the incalculable disappears. ...Once more the conclusion is too simple and trenchant; the world is more complex. ...European thought already tends to posit behind all manifest activity an Unmanifest called according to intellectual predilection either the Inconscient or the Subconscious which contains more and in a way unseizable to us, knows more and can see more than the surface existence. Out of this Unmanifest the manifest constantly emerges.”¹¹²
5. Vitalism, Idealism and Science – “Theories of vitalism, idealistic tendencies of thought, which were supposed to have been slain by the march of physical science, now arise, dispute the field and find their account in every change of scientific generalization which at all opens the way to their own expansion and reassertion. In what respects then is it likely that the evolution theory will be found deficient by the wider and more complex thought of the future and compelled to undergo essential

¹¹¹ Op. cit. Sri Aurobindo, p. 320

¹¹² Ibid., p. 318. This discussion of materialism and the “unmanifest” has to be elucidated by the Platonic and Medieval notions of the Idea (eidos) and the appearance (phaneros), or the temporal/actual and the eternal/potential aspects of reality. See: Marcuse (1968), “Concept of essence” in *Negations* for a detailed discussion

changes?"¹¹³

Toward an integral deconstruction

1. Mutual help is thought to be “superior” to struggle and competition. This is the typical pattern of binary, “logocentric” thought.¹¹⁴ The former turns out to be the product of the latter, however. In human societies the elite class benefits from technology that raises the standard of living for the workers to a comparable level of affluence, after centuries of struggle. But, as the dominant species of top feeders deplete the food chain base, they may again resort to heavy competition – class warfare. In the sea a certain bottom feeder carries a parasite that drives it toward the upper water where it is eaten by a top feeder, and the parasite larvae mature into a worm in the intestines of the top feeder, to later nourish another bottom feeder: competition and mutuality converge on a point. On the horizontal plane, mutuality is a more prevalent pattern; on the vertical, it is competition. It is a matter of perspective, of x/y coordinates and

of the evolution of this concept of Being, from Platonism through Phenomenology to Materialism.

¹¹³ *Ibid.*, p. 317. This essay on Evolution provides the basis for a philosophical departure toward the thought of Bergson and Whitehead, the former vitalistic and the latter mentalistic elaborations of the philosophy of evolution, necessary steps toward the transition to a spiritual philosophy. Each one influences, qualifies, and attempts to elevate the pull toward a purely materialistic interpretation of the processes of nature.

¹¹⁴ “The philosopher [Jacques Derrida](#) (*L'Écriture et la différence* [1967; *Writing and Difference*]) contributed to 20th Century philosophy his poststructuralist project to “[deconstruct](#)” the binary structures of thinking on which Western culture appeared to be based and to expose the hierarchies of power sustained by such simple oppositions as the favouring of speech over writing or masculine over feminine. Derrida challenged the conventional cultural markers of authority, attacking “logocentrism” (the belief in the existence of a foundational absolute word or reality) and “phonocentrism” (lodging authenticity and truth in the voice of the speaker).” (From: “**French literature.**” (2008) Encyclopædia Britannica from *Encyclopædia Britannica 2007 Ultimate Reference Suite*)

complementarity, not an absolute. Darwin said the “survival of the fittest” meant only that variation and adaptation would naturally select those best fitted for survival within the niches available; he did not give it an exclusively competitive or cooperative economical twist. The opposite value, or consequence of failure to adapt, was extinction, not poverty or penalty.

2. It is implied that the psychological (mental) factor in the empirically observable phenomenon of heredity is superior to the mechanical (physical) factor. What is observable, by inference, is that somehow an organism’s characteristics are passed on from the parents to their progeny. “What” is passed on along this vertical plane of ascent/descent is apparently a combination of physical structures and patterns of individual and social behavior. “How” they are passed on is apparently through the horizontal processes of reproduction: cell division, insemination, and embryonic development first, then nurturing, growth, development and adaptation to the environment. The stages of the process seem to follow the vertical path: first primarily physical, then vital, then psychological, with reference to the passing on of “predispositions” in the individual. But in the horizontal, psycho-somatic world of the phenotype, where selection takes place, the “life-world” and “mind-world” of the shrews 50 million years ago for example – one preferring the smell and feel of mud in its nostrils, another the cool winds and dry crackle of leaves in its ears, leads eventually to the evolution of hippos and tarsiers respectively. Through “predispositions” – which undoubtedly means inner, psychological drives – niches are found, new patterns established, and later genetic variations eliminate former patterns and the structures that support the new patterns are selected. The current view seems to tend toward the idea that the physical is the “carrier” of the vital and mental behaviors, in the sense that the latter horizontal expressions transcribe the former, and the former, vertical transmission records in genetic script the history of the latter: the genotype and phenotype are

perfectly complementary. In such a view, Sri Aurobindo's intuition is understandable and essential.

3. There may be an analogy between the spiral dynamics of the social, economic, and cultural human plane of development and the appearance of species along the path of mass extinctions and subsequent explosions of variation, but, like the analogy between bird wings and insect wings, there may be no direct homological relation. There is apparently both a gradual development toward difference and diversity on the horizontal plane of biological evolution during major intervals of time, and periodically a sudden extinction followed by relatively rapid variation into the open niches, on the vertical plane of deep time. In the human, socio-cultural domain civilizations rise and fall, achievements in science and technology are efficient on one arc of the spiral and deficient on another. New varieties of cultural expression emerge that contain elements of the old but also evident advances while some qualities recede. Some then say the past was superior to the future and others the opposite. The theory of evolution seems to imply the superiority of the future, but Stephen Gould and Jean Gebser dispute this idea. Gould (*Full House*, 1996) discounts "progress" on the grounds that many species have been more successful in the past, some more diverse or more plentiful, biological evolution is very gradual and simpler species are generally more successful than more complex ones; cultural evolution is Lamarckian, much more rapid than biological evolution, and directional; it follows the pathways of mind more exclusively, but some cultures have been more artistic, or more powerful, or more technological, or mythological, etc., and none have lasted more than a second in geological time. Gebser (*The Ever-Present Origin*, Eng. trans. 1985) argues that temporal progression is an illusion since the same principles and potentialities are ever-present and merely evolve to different levels of organization. And the levels he describes: archaic, magic, mythic, rational, integral are all on a higher, cultural scale determined by mind. These dissenting views are

not static but they imply a different conception of time, which is possibly what Sri Aurobindo was indicating by focusing on leaps and discontinuities.

4. Again, there are mechanical processes in nature, and there is obviously some kind of determinism. But it is not absolute; there is also novelty. It is the desire for control of nature through accurately predicted occurrences from predetermined causes, the scientific motive, which postulates a principle of mechanical determinism to explain the world. The motive behind such thinking and exploration is clearly the human being's mental and vital interests in achieving social and economic success. But the pursuit of knowledge to achieve this aim has shown again and again that there is no strictly materialistic determinism, or any other kind of absolute determinism. The universe is completely indeterminate on the quantum level, more constrained on the organized life plane where evolution primarily occurs but still characterized by surprising novelty, and comparatively very free on the mental plane, until it tries to organize life and body and then is almost totally constrained. Each plane has its laws and limits. And all three levels constantly interact and alternately predominate in the relationship. Each is limited by its vertical relationships to the others and operates horizontally according to the limitations and freedoms of its own principle. None is absolutely either determined or free. Therefore, in philosophy and psychology, the ideas of essence and existence, potential and actual, ideal and real, subconscious-superconscious, have been developed in the 20th Century to encompass the entire breadth and depth of the interactions of the three worlds, whose inner workings are largely unknown and unseen (occult), but whose outer forms and processes are known and theoretically necessary. The rational mind tries to account for the unseen with stable generalizations: the whole being, its form or essence, its potential, its good. As Aristotle said 2000 years ago, what we "know" about something is what each thing potentially is. The process of its becoming actual constitutes all the dynamics of the

space-time physical, vital, mental complex we call Nature. In the end we are left with a very relative kind of understanding of the latter which in itself is ever-changing, which we reduce and enshrine in more or less eternal formulas and symbols, whether scientific or philosophic – our abstract and rather superficial ideas which we pretend are unchanging.

5. When Sri Aurobindo posed this question, Bergson had already published *Creative Evolution* in which he proposed Consciousness as the absolute principle of existence and *élan vital* as its corollary to “matter” - the force that creatively organizes the material world, moving toward intuitive consciousness of the absolute in the material manifestation.¹¹⁵ In itself this now appears to have been an extraordinary leap of insight, whatever its short-comings may be. But his approach was philosophical; on the basis of scientific knowledge combined with metaphysics, he proceeded through a critique of knowledge itself – epistemology – to an understanding of the evolution of spirit. He determined that the pattern of intellectual abstraction and fixation on stable forms, rather than process, is a limitation that has to be overcome if we are to really understand evolution; another faculty of intuitive knowing has to be evolved. He was followed by Whitehead, who

¹¹⁵ As we shall see, there is much in Bergson’s *Creative Evolution* that anticipates Sri Aurobindo’s general point of view, and that may well have provided the latter with a starting point for the elaboration of his own theory. For example, in the commentary on “Heredity” quoted here from the essay *Evolution*, Sri Aurobindo uses language and observations almost identical to Bergson’s when he wrote: “After having been affirmed as a dogma, the transmissibility of acquired characters has been no less dogmatically denied, for reasons drawn *a priori* from the supposed nature of germinal cells. . . . But if, perchance, experiment should show that acquired characters are transmissible, it would prove thereby that the germ-plasm is not so independent of the somatic envelope as has been contended, and the transmissibility of acquired characters would become *ipso facto* conceivable. . . . But it is just here that the difficulty begins. The acquired characters we are speaking of are generally habits or the effects of habit, and at the root of most habits there is a natural disposition. So that one can always ask whether it is really the habit acquired by the soma of the individual that is transmitted, or whether it is not rather a natural aptitude, which existed prior to the habit.” (*Creative Evolution*, Eng.ed.1911, p. 78-79)

associated himself with Bergson's critique of scientific thought, but developed a more spiritualized version of the world as an organic entity developing in dynamic relationship with an involved superconscient or ideal plane. The resonance between the thinking of these two "process" philosophers and Sri Aurobindo's later philosophy of supra-mental evolution is quite astonishing. What all three attempted was a theory of reality based on the integration of the material and the spiritual planes of existence; Sri Aurobindo went even further and tried to *manifest in practice* the integral intuition as an evolutionary fact. In this developing world-view, neither matter nor spirit is necessarily privileged; each is a necessity for the other, and true knowledge, true life, and true matter can only be realized through the process of their actual integration in consciousness.

Conclusions

When we survey the field of evolutionary theory from a Darwinian perspective, the picture that emerges is of a vast continuum of life diversifying gradually over an immense span of time. If we concentrate on the similarities of form and structure we tend to arrive at a static conception of species and classes of species of more or less closely related organisms – related in terms of genetic structure, organic processes and behaviors, faculties of perception, spatial radiation and temporal succession. At the higher levels of complexity the principles of intelligent behavior are widely shared, and at the very top we are all rational. If we concentrate on the processes of development, the interrelationships of entities and environments, the chemistry and sociology of reproduction, growth and extinction, we arrive at a more dynamic conception of on-going and open-ended change and diversification. Either way, we end with a general conception of identities and differences, of unities and diversities, of essences and existences as dual categories by means of which everything is known and understood.

But then we confront a problem. When we glance from our constructed knowledge back into the worlds of matter, life, and mind in which that knowledge is grounded and which it is supposed to explain, we find that we don't really know very much about what is going on there. The reality is astonishingly different from our well designed conceptions, which are in a sense true, nonetheless. Dogs and horses are intelligent, birds and bees organize their lives, termites process the detritus of forests, but do these facts really tell us anything about the dog or horse whose behavior we admire, or the sensory system of the birds and bees as they confront and shape their world and ours? Do we really know the lion or the giraffe; do we at all grasp the extraordinariness of the phenomenon of sight or of language, beyond their structures and functions, and names, the incredible fact that they exist? The faculties of sense perception - sight, hearing, touch, smell - are working in every individual of those tens of thousands of species that we have categorized, right now as we read this, and at every level of the ascending hierarchy of life's complexity, extending to every habitat on every continent, not the least of which are the diverse human habitats of the present and of many other previous civilizations. The immensity and marvel and incremental dynamic processes of that ubiquitous and intelligent life force, we must admit, are far beyond the grasp of our conceptual generalizations.¹¹⁶

¹¹⁶Of this immense prospect of "consciousness", Sri Aurobindo writes in *The Life Divine*, "When we speak of subconscious mind we should mean by the phrase a thing not different from the outer mentality, but only acting below the surface, unknown to the waking man, in the same sense, if perhaps with a deeper plunge and a larger scope. But the phenomena of the subliminal self far exceeds the limits of any such definition. It includes an action not only immensely superior in capacity, but quite different in kind from what we know as mentality in our waking self. We have therefore a right to suppose that there is a superconscient in us as well as a subconscient, a range of conscious faculties and therefore an organization of consciousness which rise high above that psychological stratum to which we give the name of mentality. And since the subliminal self in us thus rises in superconscience above mentality may it not also sink in subconsciousness below mentality? Are there not in us and in the world forms of consciousness which are submental for which we can give the name of vital and physical consciousness?" (1914/1970 Ed., p. 86)

Our generalizations may enable us to understand certain patterns, predict certain occurrences, influence certain processes and outcomes, and they may enhance our ability to respect and interact with others in the world of which we are all a part. To the extent that they are true, our conceptions are also for the most part “good”, which is to say “beneficial”. We commonly use our knowledge to improve our conditions, or at least we strive to do so, even if it means harming others. And here we may again pause and reflect. For if many of the species of the animal kingdom who are at the top of the food chain are currently in danger with respect to their survival, largely due to our actions, and we know that “survival” is Nature’s primary purpose, then how “beneficial” is our conceptual knowledge, really? Does it enable us, for example, to avoid an impending disaster, to save an endangered species, to understand another’s feelings, to adequately evaluate the plight of those whose survival is currently or soon will be endangered? We know that we are relatively free to understand and to act accordingly, but also that our freedom and understanding are limited by numerous constraints. We do not know how far those limits can be stretched, nor whether our freedom will finally be able to save us.

And it is here that Sri Aurobindo began *The Life Divine*, as we have seen, and perhaps it is where all philosophy really begins – at the boundaries of knowledge. At such a precipice, at times it has become possible for those with a sufficient understanding to be inspired by the theory of evolution, and to see beyond the limitations of mind and its philosophical formulations a ray of real hope. This was clearly the case with both Bergson and Sri Aurobindo:

The whole history of life until man has been that of the effort of consciousness to raise matter, and of the more or less complete overwhelming of consciousness by the matter which has fallen back on it. ...It was to create with matter, which is necessity itself, an instrument of freedom, to make a machine which should triumph over mechanism, and to use the determinism of nature to pass through the meshes of the net which this very determinism had spread. ...Everywhere but in man,

*consciousness has had to come to a stand; in man alone it has kept on its way.*¹¹⁷

*It has to be noted that the human mind has already shown a capacity to aid Nature in the evolution of new types of plant and animal; it has created new forms of its environment, developed by knowledge and discipline considerable changes in its own mentality. It is not an impossibility that man should aid Nature consciously also in his own spiritual and physical evolution and transformation. The urge to it is already there and partly effective, though still incompletely understood and accepted by the surface mentality; but one day it may understand, go deeper within itself and discover the means, the secret energy, the intended operation of the Consciousness-Force within which is the hidden reality of what we call Nature.*¹¹⁸

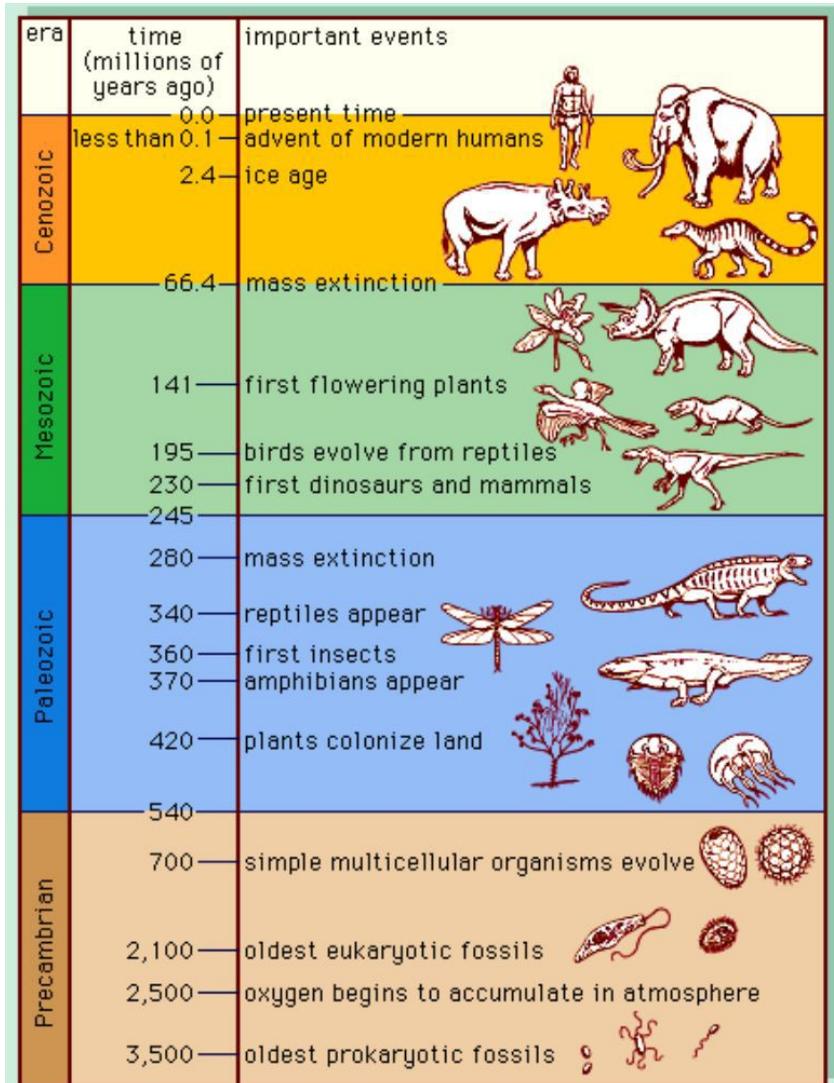
¹¹⁷Henri Bergson, *Creative Evolution* (Eng. ed. 1911), p. 264,266.

¹¹⁸Sri Aurobindo, *The Life Divine*, (1st ed. 1939-40/) p. 844.

Appendix 3

Illustrations

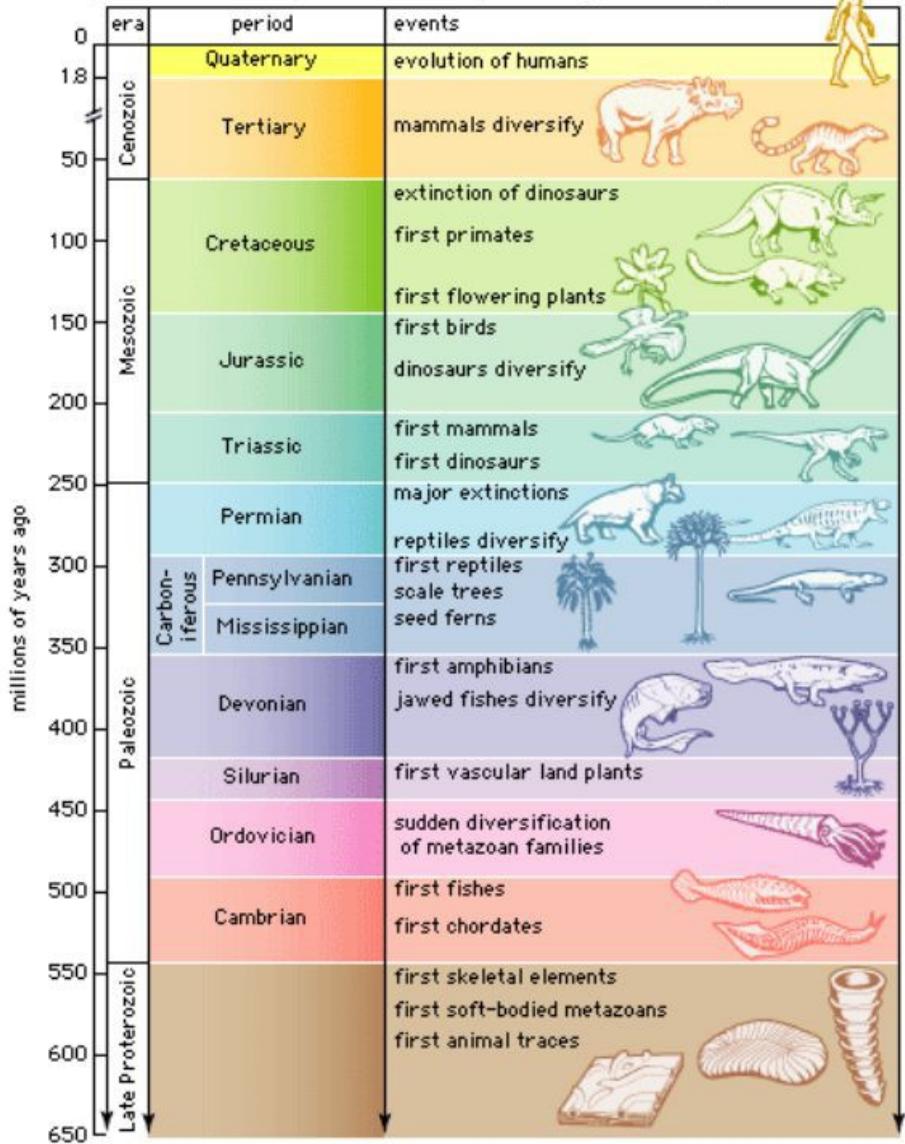
Geologic eras (log)



©1996 Encyclopaedia Britannica, Inc.

Geologic eras

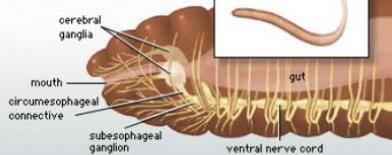
Geologic time scale, 650 million years ago to the present



© 2005 Encyclopædia Britannica, Inc.

Body types

Nervous system of the annelid (earthworm)



© 2002 Encyclopædia Britannica, Inc.

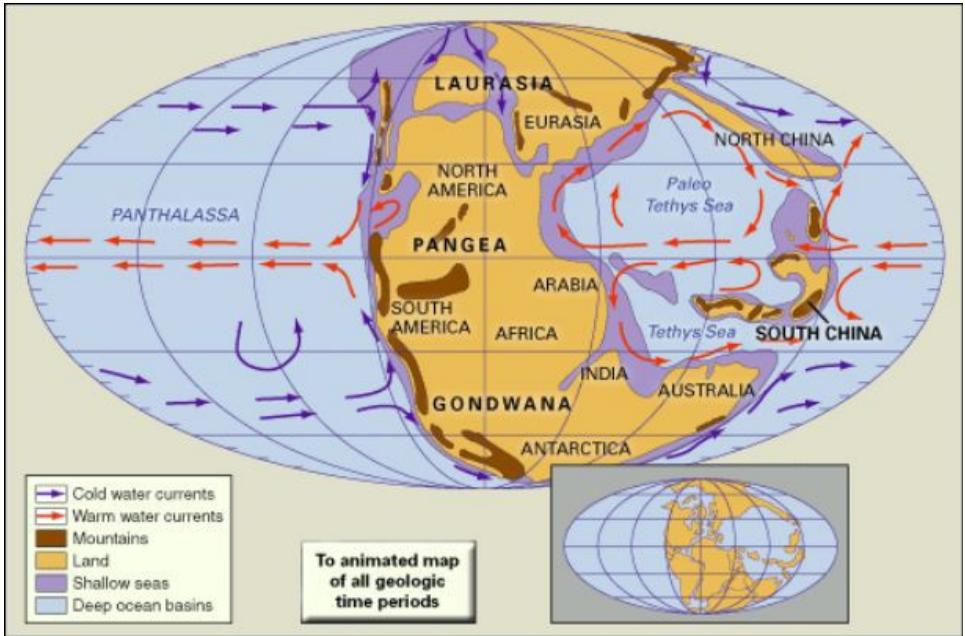
Nervous system of the cnidarian (*Hydra*)



© 2002 Encyclopædia Britannica, Inc.

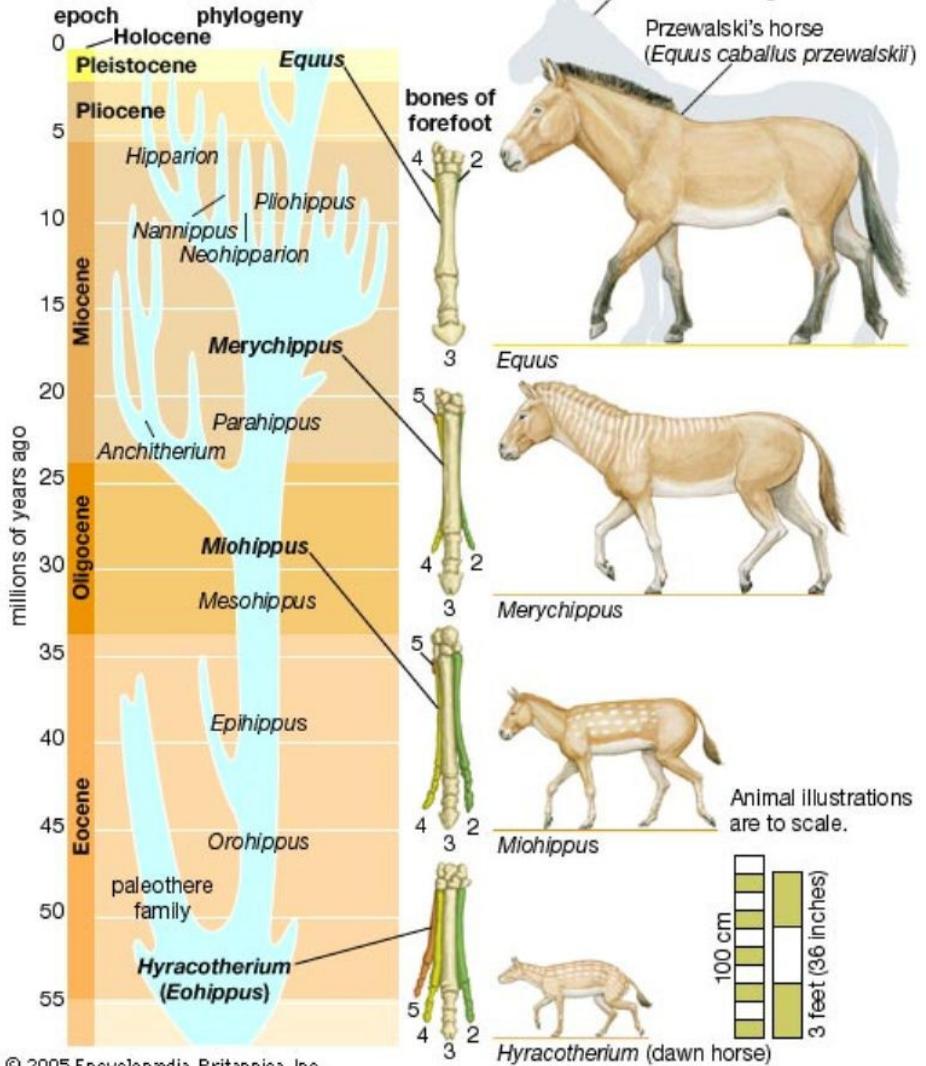


Ordovician period



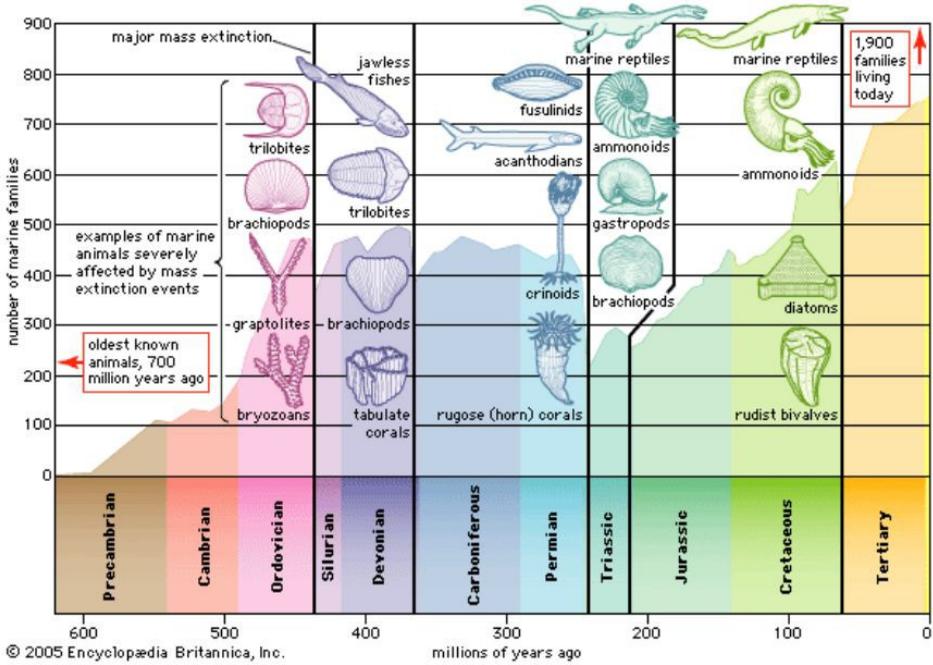
Genus Equus

Evolution of the horse

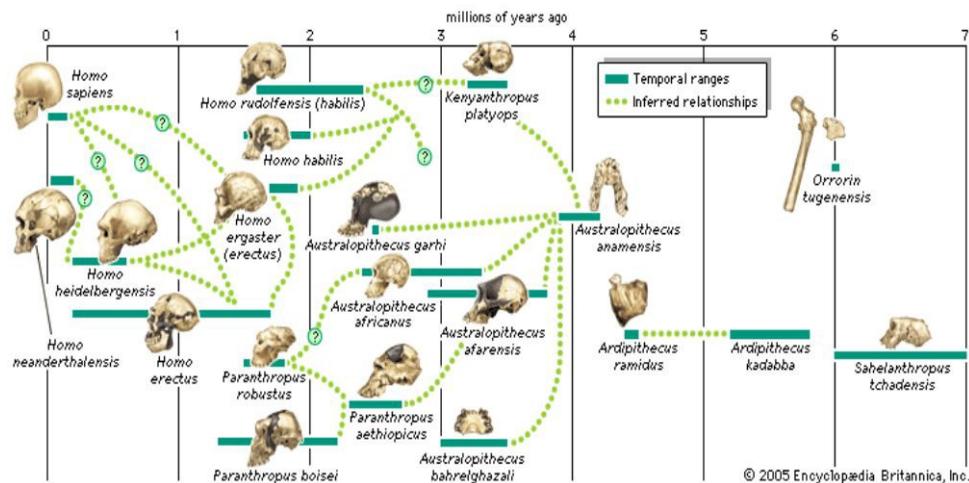


Marine diversity

Diversity of marine animal families over geologic time

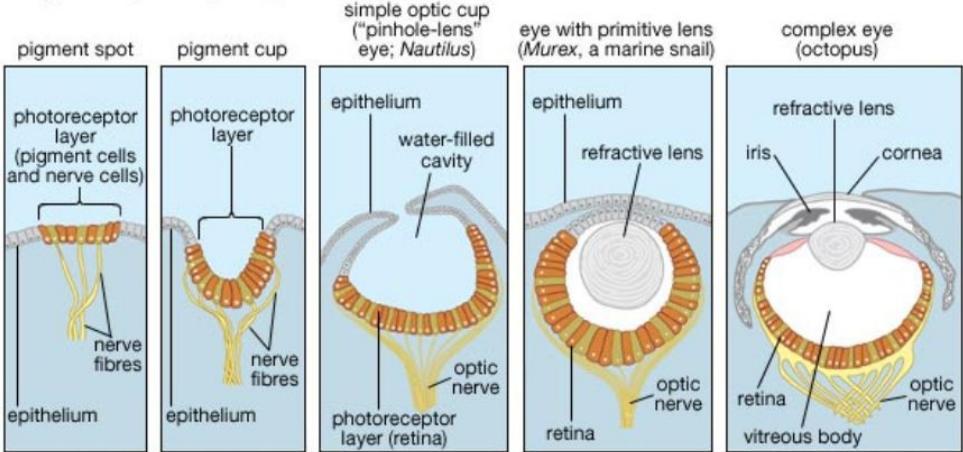


Genus Homo



Mollusks eyes

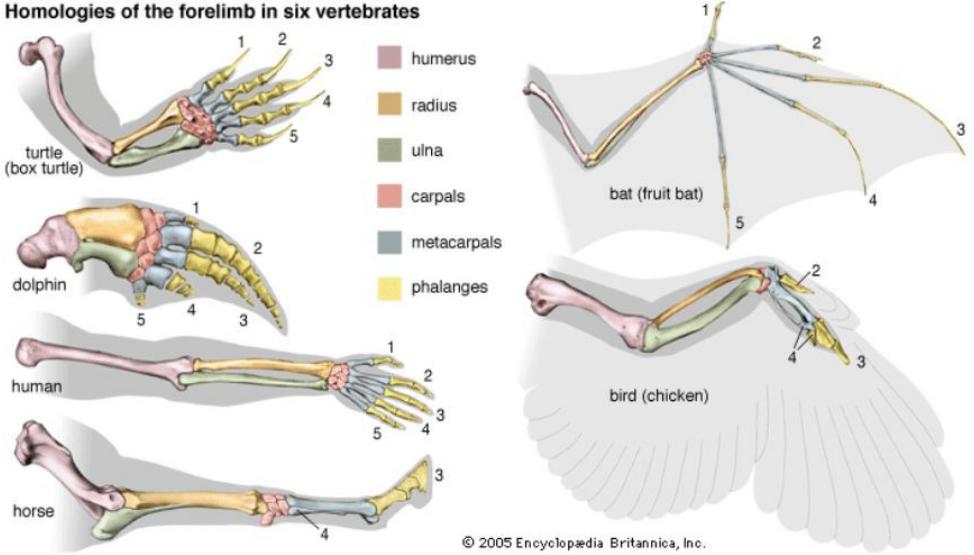
Stages of eye complexity in mollusks



© 2005 Encyclopædia Britannica, Inc.

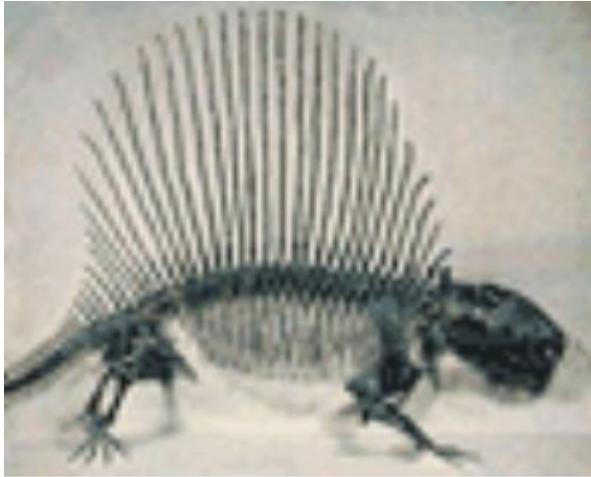
Homologies

Homologies of the forelimb in six vertebrates



evolution. (© 2008). Encyclopædia Britannica. *Encyclopædia Britannica 2007 Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.

Late Permian



Dimetrodon 300 mil (early vertebrates)



Dicycnodon 200 mil (Therapsids were the stock that gave rise to mammals. A few therapsids were still present in the Late Triassic and even into the Jurassic, but most had by then become extinct or had evolved into primitive mammals.)



Ichthyosaurus (largest inhabitants of Triassic)

Time-table of evolution

Geological Period	Millions of Years Ago
Devonian	400
Permian	300
Triassic	200
Cretaceous	100
Tertiary	66
Quaternary	1.6

Genus Homo

Homo habilis	2
Homo erectus	1
Homo heidelbergensis	0.6 (600,000 years)
Homo neanderthalis	0.4 (400,000 years)
Homo sapiens	0.15 (150,000 years)
Homo sapiens sapiens	0.05 (50,000 years)

Ages of Man

Archaic	160,000-40,000	(120,000 yrs)
Magical/symbolic	40,000-10,000	(30,000 yrs)
Mythical/typal	10,000-1000 BCE	(9000 yrs)
Religious/conventional	1,000 BCE-1500 CE	(2500 yrs)
Rational/individual	1500-2000 CE	(500 yrs)
Integral/supramental	2000 -	

Text selections, editing and illustrations prepared for the University of Human Unity Lecture Series *The Philosophy of Evolution* by Rod Hemsell, 2008-2010, transcription assistance by Robert DeMito, audio recording and editing by Vladimir Iatsenko.

Part 2

MIND AND SUPERMIND

Lecture 1

Introduction¹¹⁹

In the previous hour's session (The Symbolism of the Vedas), when Vladimir was speaking about the mythological time when the *paravak* was creating – not representing or reflecting but creating its instruments, creating language and meaning, – it occurred to me that in evolutionary biology today there is a common understanding that when the spine became straight and the brain cavity enlarged, somewhere between 1.5 million years ago and 40 thousand years ago, during that transition from the Australopithicene to the Homo sapiens, it is thought that there was a simultaneous development of the jaw shape and vocal cords. The upright spine, enlarged brain cavity, jaw shape and vocal cords all occurred during the same transition from Australopithicene to Cro-Magnon/Homo sapiens.

The process which occurred may have been what Darwin refers to as “co-adaptation of parts”: when one part changes, the other parts change automatically, and not necessarily as an adaptation. There are always changes going on in species that are co-adaptations, which are not originally the process of an adaptation, but when one part changes successfully, because of its genetic linkages with other parts of the body, other parts also change. So, the upright walking of the human being, the new shape of the head, neck and jaw that occurred in early humans, corresponded to the enlarging of the brain cavity and to the development of the vocal apparatus. All of these changes in the structure of the human being seem to be related, and suited the common development of what we know, now, as ‘the human being’.

¹¹⁹This is an edited transcription of the first lecture in the second series, Philosophy of Evolution (2): Mind and Supermind (2009), available in audio on the University of Human Unity website: <http://universityofhumanunity.org/audioidetail.php?audioid=1993>. This course was delivered in tandem with a course on the mythology and language of the Vedas by Vladimir Yatsenko, to which references have occasionally been made.

Language development happened at about that time as well. So we might be able to imagine an early period of human history in which those mythological forces which Vladimir was just speaking about, at a time when language was still closely associated with pure meaning – that the pressure that originated language corresponded to the pressure of the formation of the whole verbal apparatus, which distinguishes us so much, so absolutely, from every other species. That which is uniquely human is in fact this verbal apparatus and this larger brain that create language. So, if at that mythological time there was something really happening that was not just Vedic speech, but was the shift of the whole species towards its present state, - which could have been 150,000 years ago, between the australopithecine and cro-magnon eras - it's conceivable that this process itself could have been the result of a kind of Overmind pressure that helped to bring about all of these changes in the human being, some of which were adaptive on the physical level, and some of which were adaptive on the vital level, and most of which were co-adaptive on the mental level, but originating on a higher spiritual plane of consciousness-force.

So, it just struck me, in that mythological description of how at one time language was a pure transmission of sounds which had generic meanings, which later on became diversified and specified as language, something else could also have been going on at that time, because the big question in the philosophy of evolution, and in the science of evolution also is: How did the major vertical shifts occur? We know a lot about how the cladistic speciation occurs, and most of the science of evolution studies cladistic, or horizontal speciation. But how do these major shifts occur between micro-organisms, and fish, and reptiles, and birds, and mammals; between non-mental and mental beings? How is it that Sri Aurobindo can say that man is characteristically a mental being, as opposed to the lower mammals, although they are our “mental congeners”? In this human species, everything is mental. There is nothing in human evolution that is not predominantly mental: tool making – but tool-making of a very sophisticated sort – and language, and the “ethical” organization of societies.

In the last session of the first series of this course on the philosophy of evolution, we stopped with the evolutionary advent of the mental being. What is it that primarily characterizes the mental being and its ethical group behavior? Ethical group behavior is a product of language. So, Sri Aurobindo says in *The Human Cycle* that vital behavior, the evolution of the vital in nature and in animals, is capable of sensibilities even beyond human sensibilities: feelings and associations that are richer in quality. The relationships that we see among the higher mammals are relationships of integrity and feeling and awareness of a very sophisticated nature, and he says that the vital in us is capable of all of that: association, caring, remembering, anger, and enthusiasm, and many emotional traits which are characteristic of human beings are also present in the animal kingdom. These are levels of mind involved completely in the vital. Within the human being, mind is no longer completely involved in the vital. It emerges as planning, and representing, and theorizing. When the processes of planning and inventing and creating human values emerged, language also emerged in its very particular human form, and no other species has it.

So I was just reflecting on this description of the mythological origin of language, and how whatever it was, whatever influenced the emergence of the human being, might have also influenced the human being's formation on all levels – physical, vital, mental. So, mind emerged fully as the 'human being'. Prior to that emergence, mind was totally involved. As we stressed in our first series, biologists today recognize that cognition is going on at every level of speciation and evolution and behavior. Cognition is a common trait of animals, whether at the level of the one-celled animal, or at the level of the hydra and the gastropod, or at the level of simpler animals and complex animals, it's generally thought today that cognition – information processing – is going on, even at the cellular level, in the organization of the life of all animal species. From the simplest to the most complex, cognition is there, and so the point that was made in the twelve lectures of the first series was that Sri Aurobindo's original concept in the 1920s that mind, life and body comprise a three-fold complex, and that

science would come to recognize this, has now been recognized widely. Whether you're reading an ultra-Darwinian like Richard Dawkins today or a more new-age biologist like Rupert Sheldrake, or a philosophical biologist like Konrad Lorenz, all are recognizing cognition as a fundamental feature of animal evolution.

So, these physical, vital, and mental 'levels or principles' are now fully present in scientific thinking. The vital is all the drives to reproduce, and consume, and organize matter. Matter is there as the substratum. Organic chemicals are organized by the vital principle. It's not just carbon and oxygen, it's carbohydrates, and protein molecules, and genes that form the basis of life. However, carbohydrates are created by the organization of life, by the principle of life itself, and they continue to complexify until we have this very complex organism, the animal, with all its structures and functions, who organizes all of its life activities around gathering and consuming and processing energy and reproducing itself, each in its typical pattern, *autopoiesis* (self-replication). That is the prime characteristic of life: its ability to replicate itself, which is genetic no doubt. It is very close to the physical level, but replication is highly-organized physical and vital-level activity. And once the being is replicated, it functions in this most amazingly beautiful and complex manner that so preoccupied Aristotle more than 2000 years ago. It builds its homes, it raises its young, and it transmits its traditions to its young, even at the level of bees and ants. And it perceives its world and organizes its life, with a certain purposefulness – the beginning of mind.

We previously had twelve lectures about evolution in general, and in the twelfth one we finally came to Sri Aurobindo. We did not start with Sri Aurobindo. We finally came to the point of asking this question: On the basis of everything that we can comprehend of what is known about evolution – and we went through many different biologists' and philosophers' works – can process alone account for evolution? Mechanical or vital or any kind of process? And we discussed, we read, and we saw many descriptions of the process of speciation, for example.

And then when we came to the human being and confronted something like language, and culture, and science and so on, we recognized that language as such – the phenomenon of language -- is so NOT biological, it is so Not vital, it is such an extraordinary thing in itself that biological processes cannot explain it. Biological processes can explain the structures of the body that produce language. In this sense, it is tempting to think, mythologically, that at various junctures in the leaps of complexity that characterize different phyla and genera and levels of consciousness in evolution, there has been an intervention, or a descent, of some new principle and power from a higher plane of reality into the evolving manifold, to bring about the gradual emergence of new forms and qualities of manifestation. This is the idea of the *avatars* in Hindu mythology, which at least seems to be a way of symbolizing this most elusive and problematical aspect of the process of evolution.

We find in Konrad Lorenz's work that there are many behaviors that we share with animals, including the transmission of tradition, ritual behaviors, imitation, the ability to categorize, and to distinguish different categories of objects, which he calls the "constancy phenomenon". These are biological functions; they are present almost throughout the animal kingdom. And sight, and sense perception in general, is present in every species. But think about this phenomenon of **sight**, about seeing and organizing your activities around the fact that you see. Bats do that, but they do it with radar. But fish and even one-celled animalcules direct their movements on the basis of their ability to perceive light, heat, spatial relationships. So the perception of spatial relationship and the direction of behavior based upon the perception of spatial relationship, which we refer to as "seeing", is common in the animal kingdom. Sight itself is an essential product of evolution which has evolved independently in forty different phyla. Forty different phyletic processes of descent have all created different organs and processes of sight. So, it's not an especially human, mammalian trait. Sight is omnipresent. And what is sight? It's a phenomenon of perception. And what is perception? It's a phenomenon of cognition. So, as we concluded in the first series, this evolution which we are able to

describe so thoroughly at every level – physical, vital and mental – is not just an evolution of structures, as biology normally thinks of it. Most of those structures contribute to the gathering of information and the processing of information, on the basis of which species at every level survive. Most species survive on the basis of the information that their structures of perception collect and process at each instant. This is called cognition.

So, what is actually evolving, as we look at the development of sight, or perception of any kind, from the simplest species of amoeba or worm with its photoreceptor cells, to the most complex eyes, it appears that what is evolving is consciousness. It appears that consciousness is not at all a product of the human brain, but consciousness is there at every level of evolution. At our level it has highly-refined, coordinated sense organs, and language and thought and conceptualization, but we can find the rudiments of all of those functions at all the other levels of animal life. So this is what Konrad Lorenz got the Nobel Prize for. He developed the science of ethology, and showed how all of these animal behaviors are present at all levels of consciousness, and what really characterizes the species is its particular patterns of behavior. And those patterns of behavior are often complex processes of communication, information processing, and purposefulness.

We ended our previous session with these questions: Is Process enough to explain the evolution of consciousness? What is consciousness? What is mind? And then we began to look into Sri Aurobindo, because he has given us the philosophical perspective that shows us the planes of existence, and how they interact, and he says that vital phenomena, in all the many beautiful, wonderful energetic forms that we know them, are products of the vital plane, and the vital plane has many levels, including gods and goddesses. And the mental plane, with which we are very familiar, is interacting with the vital plane to give it many, but not all, of its qualities. And the vital plane interacts with the physical plane to organize matter. And if mind is going to exceed itself – and we look around at what mind is doing today and, as wonderful as it is for

having kept us going for a few hundred thousand years, and having made us the dominant species on the planet – for all its wonders, it is also bringing us to the point of extinction. Mind is not able to solve all of its problems, and so it is beginning to ask itself: Is there something more?

And so, I am going to show you [on the projection screen] some quotes from an essay which you can find also on the internet called Mind and the Philosophy of Evolution. It is Part Three of an on-going exploration of evolution which is there on our website. Part One is called Physics and the Philosophy of Evolution; Part Two is called Darwin and Sri Aurobindo, and Part Three is Philosophy of Mind: a transcription of four lectures from the first session: Lectures 1, 7, 9, 12. This has now been completed by the present collection of lectures, 'Mind and Supermind'. I found while reviewing these four lectures, however, that they are particularly pertinent to what I want us to undertake in this last series: an exploration of the evolution of Mind. So please go to the website and read these essays, and if possible listen to Lecture 12, which is also on the web site. I find it to be a culmination of all the lectures. Everything that we need to think about in order to do this exploration is there.

We have reviewed philosophers of evolution like Daniel Dennett and A. N. Whitehead, and the former says, for example, "A proper application of Darwinian thinking suggests that if we survive our currently self-induced environmental crisis, our capacity to comprehend will continue to grow by increments that are now incomprehensible to us." Daniel Dennett is an ultra-Darwinian analytic philosopher, and yet he says that Darwinian thinking leads to the conclusion that in order to survive, we need to exceed ourselves, and as we exceed ourselves, what we will be able to do will be incomprehensible to us in our current state. This is an ultra-Darwinian conclusion that points beyond.

Well, Lecture 12 has many of those kinds of conclusions. Darwinians today are pretty far out, so I quoted a number of extraordinary things in that last lecture. Whitehead, with whom we began this course last time,

says for example, "This nebula in which our sun is placed, may be advancing toward a change in the general character of its spatial relations. Perhaps in the dim future, mankind, if it then exists, will look back to the queer contracted, three-dimensional universe from which the nobler wider existence has emerged." So, there is a nobler wider existence which he foresees possibly emerging from this contracted, spatial, mental being that we are. Not only does he see consciousness evolving, but he sees the spatial universe itself evolving. Spatial relationships are evolving. Space is evolving. It has become, with Einstein, less three-dimensional already. Hardly anyone speaks of less than four dimensions these days, and many speak of eleven.... of those who speak at all about space, that is. Most people just move around in it and try to make use of what they find in it!

We know from studying Jean Gebser¹²⁰ , - if we followed our last semester course on the Integral Paradigm, which intervened between Evolution One and this one - we had a chance to look through Gebser's work in that course, who traced the evolution of human societies from the most primitive archaic up to the most advanced rational, and he predicted the emergence of an integral species of consciousness, based upon the evolution of spatial and temporal consciousness. He was able to show how different types of spatial consciousness and temporal consciousness characterize the different stages of human social evolution. And our current stage transited, as recently as sometime in the last 2000 years, into a kind of temporal consciousness that is extra-spatial. And in the 20th century in particular, it seems that a major shift has occurred in our temporal consciousness. Our perception of time is the subject that was central to Bergson's philosophy, which inspired Whitehead and Gebser and much of 20th Century thought, and we will focus more on his work later in order to understand 'mind'. So, we perceive time differently now than people did in the 15th Century, or in the 2nd Century, or in 5000 B.C.E. Time consciousness has been evolving, as has spatial consciousness. So when Whitehead says that a

¹²⁰ Jean Gebser, *Ever-Present Origin* (1945/1953),

<http://universityofhumanunity.org/audioidetail.php?audioid=1350> (Vladimir, 2009)

nobler wider existence may come about as a result of a change in spatial relations, he's touching upon an intuition that actually belongs, probably, to the integral level of consciousness, which has not yet manifested in a general way, but which we are presumably engaged in helping to emerge.

We can now perceive that rational, spatial mind can't solve all of our problems. Life has been working on solving spatial relationships for a good long time, at least since the dinosaurs became extinct and allowed little mammals to flourish - but probably long before that, because the behavior of most animals is characterized by spatial orientation, and the organs of sense perception have evolved to manage such relations. Spatial consciousness has been evolving for a long time. According to Gebser, the most sophisticated level of spatial consciousness was reached when Leonardo discovered perspective. Then, spatial consciousness was really home.

So, we finally arrived around the 15th C. to full blown mental/spatial consciousness. Since that time we have been proceeding towards spatio-temporal consciousness, and we will eventually emerge into what Sri Aurobindo worked on yogically, very deliberately, for many years: the ability to see and function in the three times simultaneously. Now, imagine what kind of an energy shift that brings about in you! Imagine entering into a consciousness which does not make a major distinction between the future and the present and the past, and is able to organize the present absolutely in relation to what it perceives coming in the future, whether it's six hours or sixty years from now, and every energy packet that is expended is expended in relationship to that vast future creation, that perpetual novelty. If perpetual novelty becomes your ever-present consciousness, imagine how your energy will be utilized. No more will you be preoccupied with maintaining anything that belongs to the past. It will be useless, a waste of time and energy just to repeat the past every day. You will be functioning on a different metabolic level. This will bring about a shift in structure. Sri Aurobindo and the Mother have spoken about this more than anyone

else so far, saying that this evolution is inevitable.

Now, that introduces a philosophical question regarding the presumed or hypothesized inevitability of this supra-mental shift. Nobody is talking about that yet. There are some flashes of intuition, like Dennett's and Whitehead's, and Bergson's, indicating that the human being must shift dramatically to survive, and will shift dramatically anyway just as a product of Darwinian processes. But not very many are looking at the nature of that shift. So, when we begin an exploration of Mind and Supermind, in the philosophy of evolution, what we are asking is: What is Mind? How has it evolved? What are its limits? What might Supermind be?

The topics from the first series which I wanted to bring to the screen for you are: No. 1 – The Introduction to the Philosophy of Evolution. That is very important, I think. In that lecture I have stated more or less completely, and have repeated many times, the idea that a philosophy of evolution has the possibility, according to Whitehead and others, of enabling us – Us! -- to **participate** fully in life, as **evolutionary beings**. That's the potential of a philosophy of evolution. As Whitehead explains, every civilization is strongly influenced by its values. Philosophy is the statement of those values, and it is the process of grounding those values in Nature, in the world that we perceive, and how we perceive it. We are able then to base our metaphysical and religious and social values on how we perceive existence. And those values which we have based on how we perceive existence are formulated best by poets and philosophers. Now, if we begin to perceive Nature as an evolutionary Being with us as its apex,...sort of its forerunner, then perceiving ourselves and nature as evolutionary, and developing a philosophy based upon that perception, should enable us, energize us, position us in nature to understand our role as evolutionary beings, not just mental beings. Bergson and Sri Aurobindo and Whitehead stated this process, and I presented a number of quotes from Bergson, in Lecture 7, that it would be very useful to review.

Bergson was able to say in 1907: "All the living hold together, and all yield to the same tremendous push. The animal takes its stand on the plant and man bestrides animality, and the whole of humanity in space and in time is one immense army galloping beside and before and behind each of us in an over-whelming charge, able to beat down every resistance and clear the most formidable obstacles, perhaps even death." We know that Sri Aurobindo's whole philosophy and Yoga are based upon the conception that the supramental descent and its evolution in the three-fold complex will ultimately make possible the conquest of death. He has actually given us a process for achieving that, which Bergson intuited about seven years before Sri Aurobindo started writing *The Life Divine*. That's a kind of concurrence and synchronicity of consciousness, of awakening.

Then, Lecture 9 focuses on Konrad Lorenz's work in the '70's. First, Whitehead instigates us, sort of, to realize that a philosophy of evolution would identify those values in our civilization which are the highest and most needed for our understanding of things and for our survival. Then, Bergson comes along. Bergson and Whitehead were very close to each other, but Bergson ignited Whitehead and Whitehead refers often to Bergson, who identified the whole movement of life as a movement of consciousness. Then Sri Aurobindo grasped the process of transforming consciousness from the mental, whose limits had been defined by Bergson, into its next potential. The process of transforming it was grasped by him and set in motion. That's what we feel in our atmosphere here from time to time, pumping in another quality of perception, of force. But is that enough? Is it enough for us to know that there is a process of evolution going on in nature and that we're a part of it, that there is a force in the atmosphere that somehow is essentially related to that process? Is that enough?

So now we can confidently go home and drink tea and wait for the supramental being to emerge, right? Or, did Sri Aurobindo spend forty years writing philosophy and poetry about evolution for some reason? Is there something there that is essential, besides just knowing that

evolution occurs and there is a new force in the atmosphere? Is that the sole purpose of all that writing? Or, wasn't it perhaps, since it originated with the Rig Veda, wasn't it perhaps a way of channeling that power itself? Isn't *Savitri* about manifesting that power? Isn't that really what *Savitri* is about? It is not an epic poem. It is a yogic power.

And if poetry and philosophy, according to Whitehead, are in fact the very best human means for establishing values and the forms of expression for those values, then isn't it possible that Sri Aurobindo's poetry and philosophy are the beginning of the expression of values that belong to that next evolution? Then it's not at all about mental philosophy and epic poetry, but in fact it's all about supra-mental values and forces and consciousness. Because, as he says, there is a mechanism, and that mechanism requires that the mind be put directly into contact with the higher mind and Overmind energies, and he says that putting the mind in contact with those energies is what makes the descent possible.

I was planning to read a few paragraphs from *The Synthesis of Yoga*, in which Sri Aurobindo addresses this idea that we were just speaking about ...mental concentration. He says, "To use this means for unification with the divine is the condition. This concentration proceeds by the idea....." I just gave you lots of ideas about evolution. The 'Evolution of Consciousness'; that is a Big Idea. 'Supramental Manifestation': Big Idea

"...this concentration proceeds by the idea using thought, form and name... ..as keys which yield up to the concentrating mind the Truth that lies concealed behind all thought." This is a methodology, a practice, a *tantra*.

"For it is through the idea that the mental being rises beyond all expression to that which is expressed, to that of which the idea itself is only the instrument." So, there is a 'being' evolving here. The true human being – forget the supermind for a moment – the true human

being is also there behind all of the nonsense. The divine will, otherwise called the psychic being, is there behind all the vital will and the physical will and the mental will. The divine will to be what we are is there behind, and Sri Aurobindo wants us to find it by concentration on the idea. But not the mental idea. "Idea" has a meaning other than the empirical one. This is a course in philosophy, and so we will discuss the difference between the empirical idea of the Idea, and the spiritual idea of the Idea. "For it is through the idea that the mental being (that's us) rises beyond all expression to that which is expressed, to that of which the idea itself is only the instrument. By concentration upon the idea, the mental existence breaks open the barrier of our mentality." That is active participation. This is not a passive meditation. Nor merely academic philosophy.

Philosophy and poetry are only a means. A certain self-gathered state of our whole existence lifted into that superconscious truth, the self-aware, self-blissful existence, is the aim and the culmination. The culmination of our practice, the practice of concentrating on the idea, by using systematic thought, form and name – *yoga mantra*. It is a *tantric* practice. It is the core of Sri Aurobindo's Yoga. The divine word. It has many forms; philosophy is one of them; also, the fundamental one, inspired poetic speech, *yoga mantra*.

"To arrive then at this settled divine status must be the object of our concentration. The first step in concentration must be always from a constantly dispersing mind, to a settled, unwavering pursuit of a single course of connected thought." This is the first step toward no thought, which is a step toward higher thought, which is a step toward no thought again, at another level.

"The first step must be always" – these words are significant – "to accustom the discursive mind" – which you are now using to think with – "to accustom the discursive mind, to a settled, unwavering pursuit of a single course of connected thought." That is philosophy, and it can be very effective.. "And this it must do undisturbed, in the stillness, not

distracted."¹²¹

¹²¹ Sri Aurobindo, *The Synthesis of Yoga*, (1940/1970), Part II, Chap 4, 'Concentration'.

Lecture 2

The Sankhya and Yoga View¹²²

I have a goal for this course. It is not just to review philosophical ideas. The goal is to pursue an opening to a direct intuitive perception of the truth of evolution. As Sri Aurobindo said to us on our first night here, in this method of *jnanayoga*, the yoga of truth-consciousness, it helps to begin with the idea, and then to follow a path of knowledge that ends up with the direct perception of the thing itself, the thing we want to know. If we believe everything we have heard in these courses about the limited nature of the rational mind (an observation with which Bergson began a hundred years ago), if we believe any of that, then we know that the rational mind is a tool that evolution has manifested in the human in order to progress forward to another level of mind, and eventually farther to supermind.¹²³

Sri Aurobindo is going to reiterate this path tonight in the words that we will read. We will be reiterating this path until we get to the end of this path, and that does not mean until we come to the end of hearing about it. I am referring to the doing of it to its end. The end of philosophy. The evolution of Mind. That is what we want; we don't want just to hear about it anymore. So, my goal, in this group, is to try to move in the direction of an evolving mind.¹²⁴

Sri Aurobindo has told us that there is a first step and a necessary

¹²² This is an edited and revised transcript of the third lecture, presented on Oct.7, 2009, in the University of Human Unity lecture series, 'The Philosophy of Evolution (2)'.

¹²³ It may seem presumptuous to the reader to assert such a goal, which, as we know, is the goal of the Yoga of transformation; it will seem less so to the listener of the audio lecture, which is one of the advantages of speech over writing. But the advantage of writing is that explanations like this can be made on reflection.

¹²⁴ The aim of philosophy has always been the perfection of the mind and life, at least in the schools of Plato and Vedanta, from which we draw our inspiration, and if this is not the case then philosophy has little value.

condition. We are just going to try to take the first step and fulfill the necessary condition. If it works the way he says it should work, then we can confidently move towards all the rest. We cannot move towards all the rest without taking the first step and fulfilling the first condition. All these human beings running around on earth, ignorantly expecting there to be an apocalypse, are just like they have been for the past many millennia. They are running around in circles and repeating their habitual patterns, most of which came from a lower species to start with, and are waiting for the apocalypse. That is not what I am talking about. I am instigating a movement of consciousness in the direction of the evolution of mind. That is my intention. If it works, we will find ourselves poised for an evolutionary effort that we grasp fully and that causes us to be energized in a way that is not mental. My goal is to bring us to that point of energization that is not mental. I am launching a course here for a practical outcome.

Now, I am going to jump ahead, to get to the end before we take the first step, - here is a part of the end, an anticipation. "The Higher Mind in its aspect of cognition..." Now, why would Sri Aurobindo bother to qualify the higher mind in this way - 'in its aspect of cognition'? It is because there is also the aspect of will in the higher mind. The higher mind is also the higher will, and the *buddhi* is the intelligent-will of the human being. These aspects of mind of which we speak are not just cognitive, even at the animal level - the *manas* (perception and cognition) and *citta* (unconscious sensations and impressions and memory) are not just cognitive. They are all leading to an immediate purpose: action. Mind always qualifies action; it doesn't just be 'mind'. It is involved in all the levels of energy. You cannot think about a liberated mind very easily apart from liberating first the body and the vital, with the mind, in order that the mind can move on without being pulled down by the vital and the physical habits in which it is involved. It has brought along all of these habits. We are going to talk about that tonight, but first - "... there is also the aspect of will, of dynamic effectuation of the truth." Effectuation of the truth. What could that possibly mean? It means how we live, what we do. "Here, we find that

this greater, more brilliant mind works always on the rest of the being – the mental will, the heart and its feelings, the life, the body, through the power of thought, through the idea-force.” This is the principle of the transformation of consciousness. In Sri Aurobindo’s Yoga, it works from the top down.

Above the higher mind is the illumined mind and this is where I hope we are headed; I hope that we will not just spin around here in the old rational mind. In *The Life Divine*, we get an idea of the obstacles in each stage of the ascent. The object of the *buddhi* (about which we will hear more later) is this: “In order to allow at all to the higher light an adequate entry and force of working, it is necessary to acquire a power for quietude of the nature; to compose, tranquilize, impress a controlled passivity or even an entire silence on mind and heart, life and body.” This imposition, without which there can be no penetration of a higher power of consciousness, is effectuated by the mind only. The reason we need to liberate the mind by knowing the mind is so that it can control the life and the body.

Regarding thought and language, because we were entering into that discussion a bit earlier, I would suggest that in the later chapters of *The Life Divine*, Sri Aurobindo specifies the nature of Higher Mind and Illumined Mind and Intuitive Mind and Overmind (see Book Two, Ch. 26). He specifies their natures just like we have been specifying the nature of rational mind (*buddhi*) and pragmatic mind (*manas*) and vital mind (*citta*), and so we will have the entire stairway.

What we really want to do now is to begin to focus on ourselves, our lives and our world around us, and learn to identify – immediately and spontaneously – every movement in nature: our nature and others’ natures and the nature around us, every movement that indicates to us some aspect of mind, so that we come into a full direct immediate grasp of evolutionary mind in its present condition with all of its qualifications, all of its habitual formations, all of its patterns of working, so that we are no longer at all thinking about mind as an abstract category of

understanding, but we are engaged fully in the direct perception of mind itself. That is a step that we need to take and it is very preliminary.

“The illumined mind,” he says, “does not work primarily by thought but by vision. Thought is here only a subordinate movement expressive of sight. The human mind, which relies mainly on thought, conceives that to be the highest or the main process of knowledge. But in the spiritual order thought is a secondary and not indispensable process.”¹²⁵ Thought is dispensable; it is not necessary. “In its form of verbal thought, it can almost be described as a concession made by knowledge to the Ignorance, because that Ignorance is incapable of making truth wholly lucid and intelligible to itself in all its extent and manifold implications except through the clarifying precision of significant sounds.” I want us to realize that the aim of philosophy, and especially a philosophy of the evolution of mind, is first of all, before it has any ideas or says any words, to perceive what is – spatially. What is there in front of you; how far away is it; how efficiently can you grasp it and eat it, or absorb it? How sure are you that that person just cheated you? You’re damned sure if you saw it happen. You don’t need a complex psychology of morality to perceive that. So, first, we should perceive things that are.

We get so involved in our complex analysis of ‘how’ or ‘why’ things are, that we forget that they are what they are. It is also the same with Mind. Mind is something that we can perceive directly in all of its levels of activity and can know directly for what it is. We don’t have to speculate about what it is, and that is also true of Higher Mind and Intuitive Mind and Overmind. When Sri Aurobindo writes Truth with a capital T, he means ‘the thing itself’. He doesn’t mean what we know or think about it, or how we systematize our understanding of it. What Sri Aurobindo means by ‘Truth’ is ‘the thing itself’. This is something which, if known by the illumined mind, is a sight; it is a seeing of the totality of the thing itself, not thinking about it or analyzing it. No thought involved. To see the thing itself requires a lot of energy, but a much more refined energy

¹²⁵Sri Aurobindo, *The Life Divine* (1970 ed.), p. 944.

than the ordinary mental energy we use to define things. It doesn't mean just seeing with the physical eye. It means seeing with the integral vision, the truth of the thing itself. When we start doing that, then we are evolving. As long as we are not doing that, chances are that we are not evolving, we are just repeating the patterns that have already evolved, to which we are very attached and from which we get all kinds of joy and sorrow by repeating.

Sri Aurobindo gives Ignorance a capital "I" because that is how he defines human evolution at this point. It is an evolution which partially knows things, which is predominantly false in its knowledge, which believes and values things which are not in themselves valuable and are not true. That is how we live. "It cannot do..." – he is speaking of the ordinary mind of ignorance – "It cannot do without this device (language, speech) to give to ideas an exact outline and an expressive body"; i.e. to give to ideas, which are mental impressions, an exact outline and an expressive body for representing and communicating what is known, in a second-hand, mediated form. That is the ordinary perception of manifestation. "But, it is evident that this is a device, a machinery. Thought in itself, in its origin on the higher levels of consciousness, is a perception, a cognitive seizing of the object or of some truth of things which is a powerful but still a minor and secondary result of spiritual vision, a comparatively external and superficial regard of the self upon the self."¹²⁶

I am suggesting that Sri Aurobindo is indicating that above the mind, which depends a lot on language, there is Higher Mind which depends on thought independent of language. Above that higher Thought-Mind is a Vision-Mind which grasps directly the thing itself in its a-temporal dimensions; in other words, it grasps the totality of the thing itself – past, present and future, potential and actual, good and bad, evolving and evolved – the thing itself. Such things as Evolution, Divine Love, Integral Yoga are grasped, not in their concept, not in their description, but in their totality of being, their energy. It is an energy field which has

¹²⁶ Ibid., p. 945.

innumerable spatio-temporal formations and somehow it is possible to grasp in those spatio-temporal formations a vision of the thing itself which is not just a vision or idea of the thing itself but which is 'the thing itself'. That is not physical vision; he is referring to a comprehensive conscious grasp of the whole Truth of the thing itself.

Tonight we are going to follow a precise verbal description of *citta*, *manas* and *buddhi*, from *The Synthesis of Yoga* (Part Four, Ch. 5), and we are also going to be told by Sri Aurobindo why it is important for us to understand these things mentally in order for us to be able to move in the direction, spiritually, of those higher levels of consciousness, which at the moment we normally do not have access to. We don't grasp, we don't live by, those other levels of consciousness. Sometimes we get glimpses of them but, according to the idea of integral yoga, it is possible to do more than get occasional glimpses of them; it is possible to enter into them and to allow their energy to penetrate all of the levels of our life. If you are living in the energetic grasp of the truth of evolution and the higher mind, that is going to change the way you live. If you are seeing the past and the present and the future as one continuum, which is known in Yoga as *trikaladrishti*, that, as I mentioned before, is going to change the way you metabolize. It is going to change the way you make decisions about what you do. You are going to be relating always to the real potential and not just to some partial manifestation of something. This is the state of genius in which some human beings have the privilege of living, sometimes. To make that way of living an evolutionary generality is Sri Aurobindo's goal. He is going to tell us what we need to do in order to make that possible. If we think it can be done without doing what we need to do, then we are deluded.

As Sri Aurobindo has stated the goal, "It is essential for him (the witness Purusha or Self) to grow out of separative individuality, to universalize himself, to make himself one with the universe. This unification can be done only through the soul by making our soul of mind one with the universal Mind, our soul of life one with the universal Life-soul, our soul of body one with the universal soul of physical Nature. When this can be

done, in proportion to the power, intensity, depth, completeness, permanence with which it can be done, great effects are produced upon the natural action. Especially there grows an immediate and profound sympathy and immixture of mind with mind, life with life, a lessening of the body's insistence on separateness, a power of direct mental and other intercommunication and effective mutual action...."¹²⁷

Let us try to take this opportunity to move in a certain direction of consciousness. I am going to go to the part of *The Synthesis of Yoga* which I requested you to read (Chs, 3,4,5), and pick out some passages so we can begin to conceptualize the different levels of consciousness that have evolved in us up to now, that are dominant in us, because we are the mental being and we know intimately all of these things which he describes. We don't bother to focus on them very much; we take them for granted, and we automatically allow them to do their work in us like they have been doing for probably a million years. There have been only slight changes that we can perceive in the way they function. If we don't know this functioning very well, then how can we expect to find another way of functioning? Sri Aurobindo doesn't pretend to be the only one who knows these things. We will see in these chapters of the 'Yoga of Self Perfection' that it is very important to analyze how our minds function in order to allow the higher *buddhi* to impose a higher will on those functions. That is the thing we are trying to learn here. And it is a knowledge, a wisdom that is common to Vedic tradition.

"Chitta, the basic mental consciousness, is largely sub-conscious." *Citta* is a term for something that is the basic structure and movement of "consciousness". What is consciousness? Here is an answer: "... basic consciousness (*citta*) has... two kinds of action, one passive or receptive, the other active or reactive and formative. As a passive power it receives all impacts, even those of which the mind is unaware or to which it is inattentive and it stores them in an immense reserve of passive, sub-conscious memory on which the mind as an active memory can draw." It is a nervous substance that has evolved over billions of years. It

¹²⁷Sri Aurobindo, *The Synthesis of Yoga* (1970 ed.), p. 614-615.

is present in every form of life and it receives the impacts of the world around it passively, and actively reacts to those stimuli. This is what Konrad Lorenz talks about throughout all of his work – cognition, at the subconscious, molecular, cellular, organismic level, which is constantly going on. Every impulse in the environment right now is being registered by our *citta*, which knows very well how to cope with it because it has sat in many classrooms since it was six years old. “But ordinarily the mind draws only what it had observed and understood at the time – more easily, what it had observed well and understood carefully, less easily, what it had observed carelessly or ill-understood; at the same time, there is a power in consciousness to send up to the active mind for use what that mind had not at all observed or attended to or even consciously experienced. ...This action of memory is so fundamental to the entire mental action that it is sometimes said, memory is the man. Even in the submental action of the body and life, which is full of this subconscious Chitta, though not under the control of the conscious mind, there is a vital and physical memory. The vital and physical habits are largely formed by this submental memory. ...Even, the whole constitution of our life and body may be described as a bundle of habits formed by the past evolution in Nature and held together by the persistent memory of this secret consciousness.”¹²⁸ We are loaded with impressions in the *citta* which it unconsciously stores, and which we use constantly.

Here is the essential thing to know: “Even the whole constitution of our life and body may be described as a bundle of habits formed by the past evolution in nature.” Sri Aurobindo got this idea from the Sankhya psychology, and had it confirmed in part by William James. William James wrote a magnificent book in 1890 titled *The Principles of Psychology*, where he goes into detail in explaining a theory of evolution based upon the formation of habits. This was widely read and communicated during the period of time that Sri Aurobindo was reading James and Bergson and everybody else, and he wrote a letter in which he said he had read that book, and that he got many useful

¹²⁸ Ibid., p. 620-621.

suggestions from it. Some of the useful suggestions that he obviously got from it, you can find in passages that are almost identical in that book to passages in *The Life Divine*. The Mother also uses this idea frequently in her writings: the idea that all of our organs, all of our systems, our whole cellular evolution is based upon the formation of habit. The organism, in its evolution, develops habits that allow it to survive. It passes on this structural organic information to its offspring. The structural organic information. There is no difference between the way an organ functions, or an organism functions, or a species functions – there is no difference between that and its stored information. It reacts and responds to its environment habitually, automatically, subconsciously because it has evolved an understanding, a knowledge, a *cittavriti* that knows how to live in its environment. We are the result of all the species' evolution that has taken place prior to us, and so, we don't think at all about most of what we do. We just are that understanding called the human being. We make all kinds of decisions and judgments subconsciously because we don't have to think about most of the things that we do. We don't think about how to make our heart beat, but it knows very well how to do that. 'Even the entire constitution of our life and body may be described as a bundle of habits formed by the past evolution in nature.' Even before there were hearts and brains, there were habits that were formed that made it possible for hearts and brains to form, "held together by the persistent memory of this secret consciousness".

"For *citta*, the primary stuff of consciousness,": ...the primary stuff of consciousness. Consciousness has a substratum. There is this *hulomorphe* or hylomorphism (from the Greek); there is the form and there is the substance under it, and the substance makes or supports the form, but the form determines the substance. Hylomorphism is the fundamental concept of the Aristotelian philosophy of nature. "In fact, all action of the mind or inner instrument arises out of this *citta* ...when it is struck by the world's impact from outside or urged by the reflective powers of the subjective inner being, it throws up certain habitual activities." That is exactly what happened awhile ago when our class

member said I could execute a certain computer strategy. She was receiving impressions, her mind picked up a subconscious memory about how something could be done, and she made that suggestion. She was not aware of all of those subconscious impressions, but they were all activated in her by the circumstances. She was not aware of the activation of the *citta* in her nervous system which brought together to her mind those impressions and allowed her to immediately formulate an idea and make a suggestion. So this is how consciousness works: partly below the surface and partly above in the “conscious” mind.

Now we will move on to *manas*. I strongly suggest that you read all this section of *The Synthesis of Yoga* (The Perfection of the Mental Being, The Instruments of the Spirit, etc.). “Manas, the sense-mind, depends in our ordinary consciousness on the physical organs of receptive sense for knowledge and on the organs of the body for action directed towards the objects of sense.” The sense mind is the consciousness which all of this *citta* has evolved in us – sight, hearing, touch, taste and a kind of subtle unified sense of what the thing in front of us is, a combination of two or more senses normally, sometimes all five, sometimes no sense data at all, but an impression that comes to us purely, as a perception of something. “Manas is the activity, emerging from the basic consciousness, which makes up the whole essentiality of what we call sense. Sight, hearing, taste, smell, touch are really properties of the mind, not of the body; but the physical mind which we ordinarily use, limits itself to a translation into sense of so much of the outer impacts as it receives through the nervous system and the physical organs. But the inner Manas has also a subtle sight, hearing, power of contact of its own which is not dependent on the physical organs. And it has, moreover, a power not only of direct communication of mind with object, - leading even at a high pitch of action to a sense of the contents of an object within or beyond the physical range, - but direct communication also of mind with mind.”¹²⁹

The “properties of the mind, not of the body” means that the body has

¹²⁹ Ibid., p. 623.

evolved these properties of mind (e.g. sensation/perception), but the body is still what is doing it. It is not doing it for the sake of being a body, it is for the sake of being a mind, but they are totally integrated, so there is no mind without body...so far. We perceive something and then we move towards it. The moving towards it is the body; the perceiving it and awareness of it is the mind in the body; the will to move towards it, to grasp and use and know the object, comes from the processing of the information, and then what moves towards it is the habitual response, not just of the mind by itself; it takes the body along with it.

I don't want to spend a lot of time on *manas* or practical sense-mind tonight, because I want to get to the *buddhi* or rational mind. But this aspect of mind gives us most of what we know through experience; it translates the impressions stored in memory and the immediate sense data into most of our common knowledge and action in the world. Consciousness is totally integrated in the body; there is no consciousness without the body. We must come to terms with the fact that all of the sense impressions, all of the vital and physical activities in which we are involved and are doing all the time are "consciousness". They are not other than consciousness....physical, vital, mental, embodied consciousness. That is consciousness, and nothing else, although a large part of it, both its structures and functions, are not present to our mental awareness. Therefore, Sri Aurobindo makes this crucial distinction: "Ordinarily we mean by it, (consciousness), our first obvious idea of a mental waking consciousness such as is possessed by the human being when he is not asleep, stunned or otherwise deprived of his physical and superficial methods of sensation. ...But this vulgar and shallow idea of the nature of consciousness...must now definitely disappear out of philosophical thinking. ...Not only so, but we may now be sure that the old thinkers were right when they declared that even in our waking state what we call then our consciousness is only a small selection from our entire conscious being."¹³⁰

Buddhi is another level of consciousness, with which we are perhaps

¹³⁰Op. cit., (LD), p.85.

more familiar. This is all found and stressed in Buddhism, by the way. Everything we read in the next few pages of *The Synthesis of Yoga* is also the fundamental text of Buddhism. "Buddhi is a construction of conscious being which quite exceeds its beginnings in the basic Chitta; it is the intelligence with its power of knowledge and will. Buddhi takes up and deals with all the rest of the action of the mind and life and body. It is, in its nature, thought power and will power of the spirit turned into the lower form of a mental activity." 'Turned into the lower form of a mental activity' – that means the rational intelligence descends to the level of practical mind and sensation, while the *citta* and *manas* are raised by the slightly-higher vibration of thought and will. Sri Aurobindo here specifies levels of this rational mind. "We may distinguish three successive gradations of the action of this intelligence. (First) There is first an inferior perceptive understanding which simply takes up, records, understands and responds to the communications of the sense-mind, memory, heart, and sensational mentality. It is the thought mind involved in the vital and physical being. It feels things, it likes or dislikes things, it wants or rejects things. That is the involved sensational mentality. Then the *buddhi* takes all of those feelings and "creates by their means an elementary thinking mind which does not go beyond their data, but subjects itself to their mold and... runs round and round in the habitual circle of thought and will suggested by them or follows with an obedient subservience of the reason to the suggestions of life any fresh determinations which may be offered to its perception and conception."¹³¹ These items are on sale this week. Save money; buy more. That is the level on which the universal *buddhi* functions in the world today. That is its field of perception and action and understanding: I know I am going to go and buy that dress (or car or computer or book) because it is on sale and I have been looking at it for weeks and now I am going to go and satisfy that impulse in a most appropriate and reasonable manner.

But, there is good news. "Beyond this elementary understanding, which we all use to an enormous extent, there is (Second) a power of

¹³¹ Op. cit., (SY) p. 624.

arranging or selecting reason and will-force of the intelligence which has for its action and aim an attempt to arrive at a plausible sufficient settled ordering of knowledge and will for the use of an intellectual conception of life. ...It is this reason which gives to our normal intellectual being our set aesthetic and ethical standards, our structures of opinion and our established norms of idea and purpose. ...But beyond it, (Third), there is a reason, a highest action of the Buddhi which concerns itself disinterestedly with a pursuit of pure truth and right knowledge; it seeks to discover the real truth behind life and things and our apparent selves... Buddhi is really an intermediary between a much higher Truth-mind not now in our active possession (but the aim of Buddhist and Hindu yogic discipline), which is the direct instrument of the spirit, and the physical life of the human mind evolved in body."¹³²

This Buddhi, this higher intelligence, is just below that possibility which Sri Aurobindo spoke about earlier in *The Life Divine* as higher mind, illumined mind, intuitive mind, which he said in that passage are the lower ranges of Supermind. Those levels of consciousness are a different way of being and knowing, a different cognition and a different will, power, force, energy. The Buddhi is the direct connection to that, and it is in the body. It is not different from the body, and it is able to contact those higher ranges of consciousness which can also be in the body, but not until it makes the contact.

"Buddhi centers its mental action round the ego-idea... But when the highest reason and idea develop, we can turn towards that which these outward things mean to the higher spiritual consciousness. The "I" can then be seen as a mental reflection of the Self, the Spirit, the Divine, the one existence, transcendent, universal, individual in its multiplicity..."¹³³

Let me reinforce what we just said, and we will close with this. I want to cross over into the next chapters of the Synthesis, 'Purification of the Lower Mentality' (*manas*) and 'Purification of the Intelligent Will'

¹³² Ibid., p. 625.

¹³³ Ibid., p. 625.

(*buddhi*), and here is the bridge. We had a question tonight about all the rest of the being. Which instrument can bring about the perfection of all the rest most effectively? This is the fundamental idea of the Yoga of Sri Aurobindo. "Since we are the spirit enveloped in mind (which we now know means *citta, manas, buddhi*), a soul evolved here as a mental being in a living physical body, it must naturally be in the mind, the *antakarana*, that we must look for this desideratum. And in the mind it is evidently by the Buddhi, the intelligence and the will of the intelligence, that the human being is intended to do whatever work is not done for him by the physical or nervous nature as in the plant and the animal. ... Once our intelligence and will are well purified of all that limits them and gives them a wrong action or wrong direction, they can easily be perfected, can be made to respond to the suggestions of the Truth, understand themselves and the rest of the being, see clearly and with a fine and scrupulous accuracy what they are doing and follow out the right way to do it without any hesitating or eager error or stumbling deviation. Eventually their response can be opened up to the perfect discernings, intuitions, inspirations, revelations of the supermind and proceed by a more and more luminous and even infallible action"¹³⁴ This we should notice is basically what the Tibetan Buddhists call *bodhichitta*, and this is the teaching also known as Buddhadharma. Sri Aurobindo is not prescribing an established religious formula, however. He is telling us very directly what that established religious formula is meant to do.

What I want us to do now is to observe closely all these different patterns of typical mental behavior that we have been reading about, in ourselves and in others, and recognize directly, perceptively, Mind in its evolved embodiment in life, in us and around us. From that concrete direct perception, we will begin to focus on other powers of mind that can be invited into these domains. He tells us, very specifically, that we cannot invite those higher powers of mind into all of these other levels until we know them intimately, know their patterns, know those habits of functioning, grasp completely all of these movements of mind that

¹³⁴ Ibid., p. 628.

we embody, and reflect upon them dispassionately, and dissociate ourselves from them all and allow another dynamic to interpenetrate the vehicle that is already formed by those patterns. To use the will of the *buddhi* to dissociate itself from all of the evolved patterns of mind is what he says is the key, the essential movement of Yoga.

To use the *buddhi* to dissociate from all those patterns which are already well-evolved, ...and at that moment it becomes possible to have a larger, more universal thought-perception of reality. Until we do that, our thought-perception of reality is predetermined by all of the already-evolved, existing patterns of mind. But, the *buddhi*, the intelligent will in us, has the power to detach itself, and to observe them dispassionately, to dissociate itself and allow another energy, thought, understanding to invade, and it can hold in abeyance all of the already evolved patterns. That is its job, in the Integral Yoga, to purify and liberate itself from its preoccupations with and attachments to the patterns, preferences, dynamic engagements and associations of the *manas* and *citta*, instead of doing all the jobs it's been doing all of the last thousands of years.

The *buddhi* is not separate from the body, so this doesn't mean abandoning the body and life. It is a logocentric habit of the rational mind to think that Buddhism does this, but not that, or Hinduism does this, but not that, or the physical must be there, not abandoned by the mind, or the mind is something evil and we need to get rid of it and just do the yoga in the body, etc. All of these mental formations are there in us, in our mind-field, all around us. They are all fine; they all do their job, but there's another job that the *buddhi* can do, which is to dissociate itself from all of these 'It should', 'It shouldn't' formations, and hold that integral space without sanctioning any of its already evolved patterns, so that a higher energetic, a direct, consciousness-force can rearrange the field. But it's the same field; you don't leave it; you can't leave it. There is no other field.

The big surprise is that the ordinary things just keep going on. Nothing collapses. However, the *buddhi* stands there and suddenly becomes a

representative of the inner *purusha* (Self) and aspires for that other vaster energy to come in. That is not just cognitive; it is also an energetic consciousness, because all consciousness is not just consciousness, it is also energy. Then there starts to take place an energy shift. You don't feel attached to all of those formations, but you perceive them directly for what they are and know them and honor them and allow them to go on doing what they do, but without a sanction. Because Nature is there, and Nature is not going to stop rolling along in her established tracks.

This movement to detach the Self and yet remain active in the world is supported by the psychology and philosophy of Sankhya and Yoga on which Sri Aurobindo's teaching is based, and from which the hierarchic concept of Mind embodied in Matter as *citta, manas, buddhi, vijnyana* is taken. For example, he writes: "When the regarding soul, the witness Purusha stands back from his action of nature and observes it, he sees that it proceeds of its own impulsion by the power of its mechanism, by force of continuity of movement, continuity of mentality, continuity of life impulse, continuity of an involuntary physical mechanism. At first the whole thing seems to be the recurrent action of an automatic machinery, although the sum of that action mounts constantly into a creation, development, evolution. ...Knowledge in the mentality is enlightened by his consciousness; he is the mental knower; but he finds that this is not a real knowledge, but only a partial seeking and partial finding, a derivative uncertain reflection and narrow utilization for action from a greater light beyond which is the real knowledge. This light is the self-awareness and all-awareness of spirit. ...But for participation in an effective all-awareness with this essential self-awareness as the soul of its action he must rise to supermind."¹³⁵

The individual human being can create an opening for another energy to enter... another conscious force – a stillness, a vast, a universality - which Sri Aurobindo describes as Higher Mind, Intuitive Mind, Illumined Mind. That functioning can begin to become familiar. It is there. You only have to give it a chance. You can't give it a chance until you

¹³⁵ Ibid., p. 610-12.

universalize the mind. I am suggesting a formula for universalizing the Mind. You begin to observe Mind at all of its levels all of the time and it's no longer "my mind", "your mind", "lower mind", "higher mind", and all of those things. It is just Mind, universal. It is going on all of the time and it's not going to stop, so you can afford to allow yourself to spread out into Mind Universal and all of its levels, even Supermind, if you can manage to expand your bubble into that domain also. Just allow that liberated *buddhi* to be detached, to give us a new focus, and something wonderful will start to happen.

As soon as it starts to happen, cognize it. Become cognizant that there is some kind of perception going on that is not the rational mind, not the pragmatic- nor vital- nor sense-mind. It is another kind of vibration that also knows things and does things but it is coming from this universalized mind-self which is *purusha*, pure Self. It is just there, behind all of those automatic functionings, and you are in it now. You are liberated. That is a transition which can be made intentionally by a process of reflection and purification and self-control and active will. It is not terribly difficult to become more conscious. I am suggesting that we practice a little bit of Yoga – simple basic stuff. We are not calling it *vipassana*, but it is a kind of *vipassana*, and *samata* and *samadhi* and all of those traditional things. In this way a bridge is created between Mind and Supermind.

Lecture 3

Part 1- Aristotle's theory of soul

In a philosophy of evolution course which focuses on the evolution of mind, we need to have some conception of what mind is. Philosophy has been occupied generally with this question since its beginning. I like to say that philosophy is actually the contemplation of what mind is.

The mind contemplating what it is, is the meaning of philosophy. I didn't discover that until I had studied philosophy for about thirty or forty years. I thought philosophy was supposed to discover what truth is. But I found out that it's just a study of what the mind is. And I found this to be a very interesting discovery. Whether you're reading Aristotle two-thousand years back, or Kant and Hegel two-hundred years back, or some today who consider themselves analytical philosophers, a Carnap or Dennett, what they are always discussing is what the mind is, how it works, what its limits are, what it can know, what it cannot know, how it can know what it knows. That is what philosophy has always done.

The two fundamental questions that mind asks itself are, 'what does it know?' and 'how does it know it?' That's been going on since mind became predominant in the human species. In early Greece, philosophy became formalized at about the same time that in India the *darshanas* were written, between two-hundred and eight-hundred BCE, and the approach that they both took at that time was quite similar. There are texts from India during that period on logic and how the mind knows what it knows, and what it knows as a result of how it knows, as well as on metaphysics and psychology, and so on. That was how the philosophic period began. And in China there are many texts from that period of the Confucian and neo-Confucian tradition which are similar expositions of how the mind works.

It's not bad to start with Aristotle. He describes pretty accurately the way we think, and you can recognize it quite easily, I believe. Aristotle

described matter and form as the potential and actual, respectively, of 'what is', and how 'what is' gets to be what it is; how the matter of something becomes the form that we know. He describes this process of nature, and he says that nature never does anything without a purpose.

The form is the purpose, or the final actualization of something, and that's what we know. The material substratum is 'potentially' what the thing is. We will see some examples of that. The acorn becomes the tree, and we don't worry about understanding the difference of the tree from the acorn, we understand the acorn is going to become something quite different, and that's going to be the thing; the essence of the thing is the tree. We know essences, according to Aristotle. That's what we know. We don't know the matter of something; we know its form, or essence.

He described the three levels of the soul, and said that everything (ie., every living thing) which has a form has a soul, which helps it become that form. He describes three different levels of soul: the nutritive, which is the growing aspect, how the physical living thing becomes what it's meant to become, and it does that through nutrition and growth and reproduction, and so on. In other words, this is the vital soul. Then, he described the senses, sense-perception, soul-perception, which all animals have, and that distinguishes animals from plants. And then he described the intellectual soul, the soul that thinks. For him, soul is the nature of something which enables it to become what it is. Soul is there in the matter, and it brings the form into its actual state from the potential material state.

Now we are focusing on the third level of soul, which is the intellective soul or mind. I just want us to become familiar with some basic concepts, as articulated by Aristotle. These concepts can be tools that we use to better understand what mind is; that is all. Aristotle can't tell us what mind is, but he can give us some tools that we can use to figure out for ourselves what mind is, just like Sri Aurobindo gave us those

Vedantic tools, like *citta*, *manas*, and *buddhi*. Similarly, Aristotle is going to give us some tools.

He says, “Turning now to the part of the soul with which it knows and thinks, whether this is separable from the others, that is to say from the sensational and nutritional part of the soul, whether it can be separated from those in definition only or spatially as well; whether the mind can be separated from the body only by definition, or whether it can actually be materially separated from the body, we have to enquire, in order to know this.” Number one, what differentiates this part, ‘mind’, from the others? And two, how can thinking take place? How is it possible for mind to know something? “If thinking is something like perceiving, it must be either a process in which the soul is acted upon by what is capable of being thought, or a process different from but analogous to that. The thinking part of the soul must therefore be, while impassive, capable of receiving the form of an object. That is, it must be potentially identical in character to its object without being the object.”

In his text known as *De Anima*¹³⁶, Aristotle went systematically through a description of what perception is, and he said that sense-perception, hearing for example, is identical with its object. Sense-perception is nothing until it hears sound, and when it hears the sound it is that sound that it is hearing. Somehow, the sound and the perception of the sound are identical. Somehow when we see or hear something, what we register is that thing. You are not seeing or hearing an image of that when you are perceiving it; you are seeing that. That, somehow, is perceived by sight and sound; this sound you are hearing coming from me, you are resonating with at the moment I am speaking, and your hearing faculty is somehow possessing this sound you are hearing. Your mind is also somehow understanding what it is that is being said. When I say ‘that writing on the board’, you know I’m indicating this whiteboard with those images on it.

¹³⁶ The quotation from Aristotle’s *De Anima* (On the soul) used in this course are from Books II and III, translated by J. A. Smith, <http://classics.mit.edu/Aristotle/soul.html>

Mind, he says, works somehow in a similar way to the way that sense-perception works. The form of objects, what they mean, what they are, - you are looking at me, so who I am, what I am, my presence here is somehow understood by you, - just like the sight, it is a faculty that enables you to see and know this object. You have an understanding of me as the person who is making this presentation to you and you understand that perfectly well, because I am actually the person making this presentation to you. So, you understand what is in front of you with your mind, just like you understand what is in front of you with your eyes. There is apparently no mediation taking place. You are simply seeing, hearing, and knowing what is.

Aristotle is asking the question, 'How is it that mind knows these objects, these forms, but it doesn't consume them like eating food; it doesn't possess their matter, but it somehow possess their essence.' You know me here making this presentation as me making this presentation to you. I don't become somehow an image in your being in order for you to know me, but still you know me. Mind is able to know the form that presents itself to the mind. So, he asks the question, 'how?' How does that happen? If thinking is like perceiving, he says, it must be a process by which the soul is acted upon by what is capable of being thought, which is the essence of the objects, because we are able to think about objects without eating them, and what we think about them is what they are. The mind is acted on somehow by what is. It must be capable of receiving the form of an object, if it is analogous to sense perception. Now that is a big 'if'.

This is an Aristotelian point of view. Mind, knowing, is analogous to sense perception. "Therefore, since everything is a possible object of thought, everything that exists, being a possible object of thought, mind, in order as Anaxagoras says to dominate, to know, to master, must be pure from all admixture. It must not be affected by temperature, and by pleasant sensations, by grossness, and subtlety; it must be pure, without admixture, for the co-presence of what is alien to its nature is a hindrance and a block."

This sounds almost yogic. Mind has to become pure and detached in order to know really what is. Otherwise, it gets mixed up with vital impulses and opinions, and so on. "It follows that it too like the sensitive part can have no nature of its own other than that of having a certain capacity." In other words, mind is potentially knowing whatever is. "Thus, that in the soul which is called mind, by mind I mean, that whereby the soul thinks and judges, is before it thinks not actually any real thing."

Just like sight and hearing, he says, are in themselves not anything except potentially seeing and hearing, only when they are activated by light or sound do they come into being, - the senses. The senses are passive, they receive objects. Mind, he also believes, is passive. It simply receives objects, not the objects themselves but the essence of the objects. "For this reason it cannot reasonably be regarded as blended with the body." Now this idea has dominated western science and philosophy ever since Aristotle said these words. The mind must be separate, must not be mixed up with the body. It may use sensations and emotions to build, to reflect on and build upon, but in itself, it is separate.

There is Descartes for you, right there. Descartes was a major Aristotelian, as were all of the medieval philosophers. "It cannot be regarded as blended with the body. If so, it would acquire some quality, e.g. warmth or cold, or even have an organ like the sensitive faculty, an eye, the eye of the mind. As it is it has none. It was a good idea to call soul the place of forms though this description holds only of the intellective soul." The nutritive soul is not the place of forms. The nutritive soul is a place for food, and it's completely combined with the body. The soul and the body as far as the nutritive faculty goes are blended. The soul and the body as far as perception goes are blended. But the soul and mind as far as mind goes are not blended. Too, even this is the forms only potentially not actually." So, the soul is the place of forms potentially. It is not actually the place of forms, the forms are where they are. The mind has no qualities. Buddhism came up at about

this time, and in Buddhism, if you contemplate pure mind it is emptiness, and it is the essence of everything. In itself, its pure nature is emptiness.

Aristotle says, then, "Since in every class of things, as in nature as a whole, we find two factors involved, a matter, which is potentially all the particulars included in the class." We know classes of things, right? We don't know things themselves, we know classes. We know people, we know lions and giraffes, we know politics, societies, we know classes and we know the particulars that belong to those classes, as such. But those particulars of those classes are still what we call concepts, they are abstractions. They are what Konrad Lorenz called constancy phenomena. We recognize societies as such. But we are not looking at all of the cells and organs and motions and behaviors of the society. When we think of the society of Athens in 350 BC,¹³⁷ we have a whole bunch of things we combine in that concept, but what we mainly know is that the society of Athens in 350 BC was not the society of Bodhgaya in 350 BC, and it was not the society of Ur in 2800 BC. It was it, it was what it was. That is what we know. We don't know all the nitty gritty details, but we know the essence of it. That, according to Aristotle, is the way the mind works, and he is absolutely right. And that is why we have to evolve beyond it.

Last night I read a very trenchant deconstruction of this Aristotelian conception of mind by Henri Bergson. He completely destroyed this conception of mind in his evolutionary philosophy. But, why did he do that? We will see. It has limits. It has very serious limits.

"Every class of things is made up of a matter which is potentially all the particulars included in the class, and a cause which is productive in the sense that it makes them all. These distinct elements must likewise be found within the soul." A cause that is productive in the sense that it makes them all; the cause of something makes it out of all of the

¹³⁷In the original lecture and audio recording, I made the mistake of saying 2350 BC instead of 2,350 years ago. The correction has been made here to read 350 BC.

material. Any form that we know has both the matter in it, and a cause or soul that makes it be what it is. "Mind as we have described it, is what it is, by virtue of becoming all things. While there is another which is what it is by virtue of making all things. This is a sort of positive state like light, for in a sense light makes potential colors into actual colors. Mind in this sense of it is separable, impassible, unmixed, since it is in its essential nature activity, for always the active is superior to the passive factor, the originating force to the matter which it forms."

Mind becomes everything. Mind can become everything. Mind can cause everything to be what it is. "Actual knowledge is identical with its object." So the mind becomes that object, that collection of words which have meaning. That collection of molecules that have form and function and quality. Our minds become that, while we are considering those words or these concepts which I'm communicating and you are witnessing. Mind becomes those.

Mind in itself, before it becomes those, is potentially all of these forms that we are communicating, actually none of them, but potentially all of them. So mind is like a field that potentially knows everything that exists. As such, Aristotle conceives of it as also being the cause, the final cause of everything that exists. So mind in the individual is potentially whatever exists in its conceptions. But mind in its universal aspect is the cause of everything which exists. So the soul in each individual is what makes that individual become what it is, and the reason the soul is able to do that is because it has this intellective aspect, or this mind aspect, which is ultimately the cause of everything, and it also has the animus, the energy to grow and sense and perceive. (Therefore we may presume that it is also Force. Ultimately Aristotle will call it the "unmoved mover". The two aspects of Mind described here seem to correspond to the concepts of *jivatma* and *paramatma* in Vedanta. Or in Platonism, the small participates in the large.) Therefore, our mind is able to know what is, because it is the causal essence of what is, already. It is already the essence of everything that is, and when it comes into contact with something that is, then it becomes that, which it already was potentially,

because it was already from the beginning potentially everything. And like light, actively present in the universe, it is creating everything that is.

“Actual knowledge is identical with its object in the individual. Potential knowledge is in time prior to actual knowledge.” So, potentially you know everything that I am telling you, but you only get to know it actually as a result of me telling it to you. So, the potential was there in time prior to me telling you all of these things. Now I have told you all of these things, so you actually know them. “But in the universe as a whole knowledge is not prior even in time.” Potential knowledge is not prior even in time on the universal plane. In other words, all knowledge is actual already in the Mind of the universe. It is potential only in the individual souls, and in matter, until it becomes actual. But in the universe as a whole knowledge is always actual, because mind is like light illuminating form, and not just visible form, but the whole organic process of becoming is being caused by actual Mind which holds everything on the plane of knowledge - but not on the plane of matter. It's pure mind; not mixed.

“Mind is not at one time knowing and another not. When mind is set free from its present conditions it appears as just what it is and nothing more. This alone is immortal and eternal, and without it nothing thinks.”

Mind is a universal presence, capable of knowledge in the individual soul, but possessing all knowledge in itself, on its universal plane. Let's think about this cosmologically in relation to Sri Aurobindo. There is matter, there is life, and there is mind. Aristotle just defined them. There is the matter which is potentially what the form is, there is the nutritive soul which brings it into its living form, and there is the mind which gives it its purpose, which is what we know when we know something. We know its essence, its purpose, its meaning.

“Let us summarize the results about soul, and repeat that the soul is in a way all existing things, for existing things are either sensible or

thinkable, and knowledge is in a way what is knowable, and sensation is in a way what is sensible. In what way, we must enquire. Knowledge and sensation are divided, to correspond with the realities - potential knowledge and sensation answering to potentialities, actual knowledge and sensation to actualities." Before we smell the smell it's potential and after we smell it, it is actual. If it was there we would smell it, and when it's not there we don't smell it.

"Within the soul the faculties of knowledge and sensation are potentially these objects, the one what is knowable the other what is sensible. They must be either the things themselves or their forms. The former alternative is of course impossible because the mind can't be the thing that it knows, it just simply knows the essence of it." The smell can't be the incense smoke, it just smells the scent which comes through the air.

"It is not the stone which is present in the soul but its form. It follows that the soul is analogous to the hand for as the hand is tool of tools, the mind is a form of forms and sense the form of sensible things."

We shouldn't forget what we have heard already about the four causes – material, efficient, formal, and final, – that the form of sensible things is the final cause also of the sensible thing. The form is the essence. The incense produces fragrant smoke because that is its purpose. The animal produces offspring and builds houses and habitats for its offspring because that is its purpose. So what we sense and what we know is what is finally. That is what Aristotle says. Sense and knowledge are what is. Here is another interesting thing he says, 'mind is always right, but appetite and imagination may be either right or wrong'.

When it's pure mind, what it knows is what is. It can be clouded by imagination and sensations, opinions, appetites, what drives the person to do what it does or the animal to do what it does. The appetite, he says finally, is a cause of motion, and mind is also a cause of motion. Appetite is a cause of temporal motion which has to do with growth

and the achievement of external objects, but mind causes motion in the sense of the final cause. Without moving itself, without becoming something, it is able to move things.

So, for example, the inclination to select a passage here and give it to you is something my hand does because my mind decided that that was important. This presentation is possible because mind itself can move the human being to do things without itself being moved by some other cause. This goes back to his philosophy of physics, which says that there must be a first cause which itself is not caused. And that is why he concludes that it is Mind. At that stage of philosophy, the farthest that the greatest mind was able to go was here: to conclude that there is something that knows, and that something itself knows what is, and therefore it is also the cause of what is, without itself being caused by any other thing.

Now we get into metaphysics. In the philosophy of evolution we ask the question, Are all of the forms and processes that we now understand, from all of the scientific and philosophical sources that we have explored, are those forms and processes enough in themselves to explain the phenomenon known as evolution? Natural selection, adaptation, variation as a result of changes in the environment, inheritance, – inheritance on the genetic level, on the epigenetic level, on the behavioral level, and on the symbolic level, – all the processes that lead to the formation of habits, the maintenance of those habits until it is no longer possible for the species to survive. And then it begins to acquire other habits, and then through behavior, and through mutation, new species are formed. We can describe this whole process today, especially since the 1960's when plate tectonics were discovered, and when physicists discovered that the universe itself evolves, and biologists mapped the genome. So we now know that none of these forms are themselves permanent, but we are able to know them abstractly to a very great extent, and we are able to describe all of the processes that underlie evolution to quite a great extent. Knowing what we know, is anything else required to satisfy us that we understand the

process, and that the process itself is what it is? Have we been able to understand it sufficiently? Are we satisfied that we know what it is, how it works; are all of our questions answered?

What question is not answered? We know that the universe evolves, that there is a force that comes from the big bang or whatever, from changes in temperature or magnetic fields, and that this force has evolved simple life forms which have all their five or six senses, at least some senses, and finally, we have human beings who are conscious. It seems, as Aristotle says, for each thing to become what it is, nature was able to select and to vary and to create all the different things that are, and to create a web of life, and the biosphere. And the human being is now there in that biosphere as a result of all that, and the human being is conscious.

We can explain to a large extent the whole process in terms of the evolution of consciousness. If the perception of light was there from the first microscopic animalcule, and perception enabled there to be learning, and this kept on evolving, until we now have on earth all kinds of animals with five senses, and the human being not only with five senses but an active mind conscious of all of these things, it seems that in order to understand the evolution of consciousness, we know everything that we need to know.

What is it that we don't know? We know the reason and we know the result, the end. Where am I going with this question? All of the biologists, from Darwin up until the present time, say that each living thing is maintained, maintains itself by habit. Even Darwin said that nature is just habit. Everything maintains itself in its niche by habit. And Lorenz says that all these habits, everything from the cell to the society have evolved through energy exchanges that constitute information processing systems. Things are able to adapt because they get information from their environment. They create habits in relation to their environment. They reproduce their types from cell division and the dance of mating, by habit, and the Mother even agrees that we all

maintain ourselves by habit. And so, if we take everything that we've learned, then we come to the conclusion that everything is maintained by habit. According to the principles of self-reproduction and cognition, cognitive interchanges between the organism and the environment that reinforce the habits, if everything is what it is as a result of eons of habits being maintained for as long as it is possible to maintain them, and then changing into other habits, known perhaps as other species, what is it that enables habit itself to constitute an adequate process for maintaining a species in its niche? Does habit explain cognition, or vice-versa? And does this duality (form and matter) constitute mind, or consciousness?

If cognition is what is happening in the exchange of energy between the organism and its niche, and that cognition enables it to establish a habit because it knows where to go and where not to go, and what tastes good and what doesn't taste good, and who's warm and who's cold (*citta* and *manas*), so it finds a habitual niche, a pattern of life and death that it maintains by habit as a result of cognition, then one question that can still be asked is, how is it that habit and cognition, conscious interaction with the environment, happen to exist as mechanisms for evolutionary existence? How is it that sight happens to be a sensation that serves consciousness? How is it that habit conserves consciousness?

In other words, if consciousness is the whole purpose of evolution how does consciousness itself happen to be in existence, a fundamental principle of existence? Why isn't the whole universe and life on earth just automatic? Why does it happen to end up as mental consciousness, which obviously has evolved all the way through the whole life process so that we are now conscious?

The first animal soul was conscious on its level, at least of heat and light. How is it that consciousness is somehow the core phenomenon of all phenomena? It's there behind perception, it's there behind habit, it's there behind cognition, cognition is a form of consciousness, habit is a

form of consciousness, perception is a form of consciousness, so consciousness seems to be a basic principle in the whole process of evolution.

How is it that consciousness happens to be the principle in the whole process of evolution that seems to have also a driving force in it because, as Aristotle says, you have potential matter, but the matter somehow becomes a form with a purpose, so there is a soul there, a cause, something that enables the thing to become what it is, instead of to become something else other than what it is.

This consciousness that is evolving in matter and life and mind seems to be a cause; it seems to be not only present in forms and structures but it seems to be driving those forms and structures to higher and higher levels of organization, and we call it Nature. So we go back to Darwin, How is it that nature happens to be selective, and that nature happens to be cognitive? From whence comes the ability of matter to become progressively more conscious? Whence comes joy? Is it a product of nature?

Part 2 - Sheldrake's theory of morphic resonance¹³⁸

Sheldrake says that this whole Aristotelian idea of soul and form has now been assumed by theorists of formative causation. Formative causation is another name for morpho-genesis. Morphe is form, genesis is causation. Morphogenesis means formative causation. So he says that physics and biology can observe that there are structures that underlie evolution, DNA underlies evolution. Behavioral patterns underlie evolution. Natural selection is a process that underlies evolution. Then the question that is the essential metaphysical question for Sheldrake is, how is it that habit, the repetition of habits, constitutes cognition. How is it that we learn through repeating things? How is it that leaning,

¹³⁸ The references to Sheldrake's theory of morphic resonance in this lecture are based on the book by Rupert Sheldrake (1988/1995), *The Presence of the Past, Morphic Resonance and the Habits of Nature*.

memory, cognition, take place just as a result of repeating things? It is apparent that learning takes place through repetition and it becomes a preferred pattern, a joyous experience, and so something called cognition takes place through repetition. Something called DNA takes place through repetition. The repetition of cell division and replication from the lowest level to the highest level somehow has happened in a consistent purposeful way. Repetition at the genetic level yields more and more conscious structures. Behavior yields more and more varieties of species. Species repeat themselves until they become other species that are more, or differently, conscious.

Habit somehow yields cognition, and at the human level we know this through learning. Sheldrake says, "OK, we can observe that learning takes place through repetition and the birds learn how to take the caps off of the milk bottles and they pass that information on to each other, and the monkeys stack up the boxes to get the banana because first of all they wanted the banana but couldn't get it because it was too high, and they played with boxes and somehow figured out that they can stack the boxes, and then they put together the two things, wanting the banana and stacking the boxes, and pretty soon they were standing on top of the boxes getting the bananas.

Human beings work the same way. Learning takes place through observation, repetition and combinations of trial and error, and once the learning takes place it gets passed on to others. This is conscious behavior. Sheldrake says we can observe such conscious behavior going on throughout the animal kingdom all the time, and at the human level it is almost all that is going on, everything else is secondary to that.

So, Sheldrake asks, Can we have a theory that explains how cognition works at the cellular level, at the behavioral level, at the mental cognitive level, and how it is that consciousness occurs at all of those levels, and that it's not just automatic mechanical stuff? At every level there is some form of consciousness happening. Can we explain how it happens? How does consciousness happen at every level, memory,

learning, habit, selection for good and rejection of bad, and so on. He asks that question from the point of view of a biologist who is very familiar with physics as well as metaphysics. He says that evolution occurs at all levels of organization from atoms to galaxies. The organized systems, –insulin molecules, fruit flies, instinctive patterns, nest building behavior, flocks of birds migrating, tribal societies, governments, scientific theories, all these are fields, morphic fields, or forms, as Aristotle would say.

We know the forms of all of these things, and we know that there are forms within forms, molecules, organs, organisms, societies of organisms, species, planets, galaxies, forms within forms within forms. Sheldrake's hypothesis of formative causation inevitably implies that the evolutionary process is closely connected with the evolution of morphic fields. There are four major consequences of this view. First, the appearance of new patterns of organization may have an explanation. How does that happen? There is one of those patterns we have described, for example, which shows that the shrew became the hippopotamus, and the deer, and the dolphin, and eventually from hippopotamus and dolphin there came primates that were related to the hippopotamus and the dolphin genetically and behaviorally. We can now observe that genetically, but at each level new forms have appeared. Those new forms were not just repetitions of the old forms; they were really novel creations, like new kinds of crystals, new species and classes of organisms, new scientific theories.

This appearance of new patterns of cognition is associated with the appearance of new morphic fields. What are the possible creative sources of new fields? These fields are wholes, and precisely because of their irreducible integrity they have to appear suddenly. This is a great idea. The new form that appears is different from the old form because they are holistic fields which don't occur little by little, the whole new thing occurs at once. You don't have gradual change between the shrew and the tarsier, which is a kind of low level primate, you don't have an infinite series, you have the shrew and the tarsier. Somehow

there is an evolutionary mutation that takes place, there is a gap, and biologists are never able to find out what goes in the gap. This is because of the holistic nature of evolution: when there is a change in the genetic pattern it affects the whole organism. Sheldrake proposes that the morphic fields, the nature of such fields, helps to explain these leaps between forms in evolution. Of course new morphic fields, or new species, involve continuity with what went before as well as discontinuity. All new fields embrace lower level morphic units that existed prior to their appearance. These subtle fields somehow retain in themselves all of their patterns of continuity and transformation.

The cell, the molecule, the organs, this is a whole morphic field, forms within forms, and when the DNA changes radically it changes the whole morphic field, so you get a new species. Second, morphic fields are subject to natural selection. The fields of new patterns of organization that are not viable will not be stabilized by morphic resonance. Morphic resonance means that this field continues to be what it is because it resonates with what it was yesterday. What it was yesterday resonates with what it was the day before, and the year before, and the millennium before that. For him, morphic fields maintain themselves through resonance, over generations and millennia. So, the first bird learned to take off the bottle cap, then another bird learns to take off the cap, and then whole bunches of birds are learning to take off the caps of the milk bottles, and that constitutes a behavioral field which maintains itself easily because there are lots of these birds that now do that, instead of just one that does that. Before, there was one that did it, and before that none who did it. So there was no such field. Once that field came into existence then it constituted a behavior field, and once the first protein molecule came into existence and became DNA, other molecules could copy that molecule.

And so, my question is this: If morphic fields underlie and are basically identical to the actual physical, vital, and mental forms, except that they don't exist in time and space but they correspond exactly to what does exist in time and space... And so, all of the moments that we know now,

all that past, and also all that future that doesn't exist right now, except in a kind of non-material way, because all of time exists in a non-material way as fields that correspond exactly to what did or does or will exist at any particular time, and so there is a resonance on the non-material level – my question is, how can you have resonance on a non-material level? And also, since all of these forms actually exist, and they actually learn, and they actually evolve, why do we need morphic fields that are identical to them to explain them?

This seems to be a physicists obsession to create a world of subtle forms that is somehow supposed to explain a world of existing material forms because its mechanisms can't otherwise be explained adequately. But you can't prove that the subtle forms are there. It is a hypothesis to prove what is there with something that is not there. And there was a very clever medieval philosopher named William of Occam who was studying Platonic ideas and said, Why do you need to have an idea of a giraffe in order for there to be a giraffe?

Aristotle was more clever perhaps; he said you need to have a cause of things which you know, because things are what they are, and so the form must have a cause, and that's its soul. And because you know it, and you don't have it in you, you know its essence, so there must be Mind which is able to know something which is in things but which is not those things themselves. It's their essence. He concluded that mind is a part of soul which causes things to be on the essential level, while life causes things to be on the vital level, and matter causes things to be on the material level. He was trying to explain everything in terms of cause but based upon Plato. He modified Plato; he didn't say that the forms existed out there in the invisible ideal world, but he said the forms exist in the things as a subtle cause, and so mind is a principle that goes along with the actual world. It is in fact the actual of all the potential world of matter and life.

Now we get Platonic/Aristotelian thought transferred by Sheldrake, who is a Catholic philosopher and who is a twentieth century biologist. He

writes a lot about Plato, Aristotle, and Teilhard Chardin, and he lived for ten years in an ashram in India, and has tried to synthesize the idea of Chitta, Manas, and Buddhi with the Aristotelian cosmology of forms, and he has come up with morphic fields, that are fields of intelligence, subtle patterns which in Aristotle's word is *entelechy*, something which is the essence of something, and which causes it to be what it is. That is its entelechy, or its intelligent soul.

So for Sheldrake now, all intelligent souls in everything are reduced to a field theory, a systems theory, and he says that there are these subtle morphic fields which stay in existence forever, and they get stronger and stronger the more they are repeated, and this is what enables a species to exist for millennia until it no longer can exist. Then, it jumps into another field. But then he says at the end, how it jumps isn't explained by morphic resonance; only how it maintains itself is explained by morphic resonance. So the question still remains of 'creativity', even after going through all the trouble of creating another world that corresponds to the real world to explain the real world. This is the problem that I wanted to bring to you.

One of the major questions of evolution that has not been answered is the question of novelty, of new creations, which maintain a kind of homeostatic continuity with the past forms but at the same time constitute holistic leaps into new forms. This is a problem with the theory of gradualism that Darwin also recognized. And it is a symptom of the deeper problem that the "mechanisms" of cognition have not been explained; only its forms are known. How existence, by which we mean the world, happens to be conscious and how it creates novel forms, are questions that are not answered by the theory of evolution as it now stands.

If we give Aristotle an Aurbindonian interpretation, and we conclude that what Aristotle really meant by universal mind was Supermind, and what he meant by the mind in the soul, the intellective soul, was intuitive mind; if he was having an intuition of Supermind as the eternal

radiance of the actuality of everything that is potential, then we can reach the conclusion that consciousness had to evolve because supreme consciousness was there as the radiant source from the beginning.

What is the difference in saying that Supermind created mind, life, and body as an evolutionary complex, with the innate structures and functions of *citta*, *manas*, and *buddhi*, and saying that Supermind created morphic fields to create minds, lives, and bodies, to provide an evolutionary structure. You don't need, as Occam said, you don't need for Supermind to create an extra set of systems or forms in order to have a system of forms, if Supermind or Consciousness is involved in matter to begin with. It means that matter is essentially a form of consciousness, and all of its processes are forms of consciousness. It seems to me that Sri Aurobindo is saying, when he describes Chitta, that Chitta is mind in matter, it has memory, it can pull essence out of matter because it was always there in the evolution of matter, it evolves with the material form, it evolves with the vital form, and in us it always remembers everything subconsciously because it is the principle of mind at the most material level. And it becomes Manas at the higher level of evolution where the senses are evolved. The structures of sense-perception have evolved through the function of the Chitta in matter, and Chitta in life, and Chitta in mind, which has produced sensory apparatuses and those sensory apparatuses, Manas, have been evolving from the beginning to give information, to collect information. That is the principle of Manas, it collects information. Why do you have to have another principle to explain Manas, when Manas itself explains the phenomenon. Then, you have Buddhi, which is rational mind, a higher form of Chitta, and Manas, that processes information abstractly. Why do you need another principle to explain that principle, which itself is what it is. It is that.

In the end Sri Aurobindo seems to say that science is able to ask all of these questions and to probe deeper and deeper and measure more and more, until it must finally come to the point that even if there are

eleven dimensions of space instead of three, or four, or thirteen - that is a physical description of the universe. It still doesn't explain, as even Rodger Penrose says, it still doesn't explain consciousness. So, the fact is, says Sri Aurobindo, that the universe is essentially Consciousness-Force; and it is made up of planes: there is a material plane, a vital plane, and a mental plane, and many planes of Supermind. And that's what it is.

If you do the Buddhistic reduction, and detach yourself from this analyzing mentality, and the sense mind, and the Chitta with all of its habits and memories, and you just pull back into Purusha itself, pure mind, then you can find the Will to Be, back there in the very beginning behind everything in you, and that Will to Be becomes the will to be physical, and the will to be vital, and the will to be mental, and ultimately the will to be divine. That psychic being or inner self, or Purusha, has been there from the beginning, from the first descent of Consciousness-Force into the material universe, and it has evolved its organs of Chitta, Manas, and Buddhi, until finally it is able to step back into its pure self, and then to receive the vibration that is its ultimate Self, and then to begin to evolve a yet higher level of structure, corresponding to that ultimate Self. While at every level it has evolved a system of structures at each level which expressed the Self on that level, so that it was expressed on the physical level and enabled the physical level to create molecules of DNA, and then the vital will or energy or force could use the DNA to create all the forms of life, and then the mental will could use all the forms of life to create mental structures and relations and patterns, so that now mental structure becomes conscious enough to reconnect with the Self in everything consciously. That explains what everything is. It is a Self emanation of its potential in infinite varieties on all the planes. So by becoming conscious of Self one answers all the questions of how habit, and how cognition, and how nutrition, and how ethical decision, and how novelty, and eventually a supramental manifestation could and have evolved.

My point was to explore what the mind is able to do with respect to understanding and describing cause and effect, and being and time,

and form and substance in terms of the theory of evolution. And this is where, with Aristotle and Sheldrake, we get to a kind of scientific metaphysics, but neither science nor scientific metaphysics answers the ultimate questions. Philosophy is able to show us the limitations of mind in both the scientific and metaphysical domains of knowledge, and then we come to the necessity to put into play a force of consciousness that is able to know from the Self the whole, because the whole is nothing other than that Self. It cannot know it any other way. The next level of the evolution of consciousness, according to Sri Aurobindo, will entail the emergence of such a gnostic way of knowing both process and reality, the how and the what, by Identity.

If you look at the principle of stability, which Sheldrake wants to explain with morphic fields, you will see that from the Vedantic point of view it corresponds to Sat, being itself; the principle of stability is established in matter, then the principle of stability is established in the genome, and the principle of stability is established in the phenome, and then it's established in societies, and then the next level of establishing the principle of stability needs to have gnostic beings, whose consciousness is one with the being and force of everything. That is the logic of Sri Aurobindo's view of evolution. And all of the infinite movement of change in this process is accounted for by the complementary principle of Consciousness-Force or Chit-Shakti.

There is a mental Purusha, a vital Purusha, a physical Purusha, and a psychic Purusha. One is a doorway into the other. It is the witness Self. The witness Self is essentially the psychic being, the Will to Be, and it becomes the Self of body, life, and mind, and then it comes back to its original Self, and it rises above to its Overmind Self and its Supramental Self. This is the process of liberation from each of its levels of involvement, which is at the root of all yoga systems and leads to liberation and the elevation of consciousness to Universality. It is the process we have referred to as the Buddhistic reduction. On the rational level of consciousness, we categorize; that is the problem with the Aristotelian mind and philosophy. We try to latch on to categories which

are supposed to correspond to actualities. The mind can become everything, so it becomes all of these forms, and then its stuck to its definitions and if those definitions don't correspond exactly to what mind is or what life or soul are, then there must be something wrong with those definitions and we are into this whole mental idiocy of thinking we know something because we have formulated a definition. We don't know anything when we form a definition; we can call it anything we want and it doesn't mean we know anything but a concept and a name or a category or description that we have formulated. This is where Bergson destroys the Aristotelian system. He says, only by an intuitive identity with the being of the thing itself can we know something, and everything else is just our mental constructions. He agrees that this is useful; the practical mind has created many useful things, and the rational mind many wonderful systems of understanding. But we don't really understand very much and we are at a dead end.

Bergson's deconstruction of Aristotelianism begins with the deconstruction of religion. For him, the whole intellectual development has grown out of social, religious cultures, but he recognizes that periodically throughout history there have been true mystics, just as there has been in the 20th Century, and he says those are the people who break through all of those conventional forms and bring in the power of love and transcendence. They are bound to both use those structures, and also to negate and transcend them. I strongly suggest that you read Bergson's, *The Two Sources of Morality and Religion* (1935/1954). It is not just about morality and religion; it's about evolution and parallels Sri Aurobindo's work astonishingly.¹³⁹

¹³⁹ This lecture is an edited and revised transcript of Lecture 9 of the University of Human Unity series Philosophy of Evolution (2) presented on Nov. 17, 2009. Bergson's last book, *The Two Sources of Morality and Religion*, along with seminal works of Teilhard de Chardin and Jean Gebser were explored in a subsequent series of six lectures which have not been transcribed.

Lecture 4

Part 1 - Aristotle and Sheldrake Again

We have reviewed some Aristotle and some Sheldrake, because they are closely related. The combination of Sheldrake and Aristotle in the pursuit of a philosophy of evolution has a purpose. It is not that either one of those thinkers, one from two thousand years ago, and one alive and well today, are in themselves necessary for us to know thoroughly. But that line of thinking that goes from Aristotle to the Middle Ages and which became strongly revitalized in the thirteenth to the sixteenth centuries in Europe, provided the foundation for scientific thinking. When we speak about the theories of Darwin and the neo-Darwinians, like Mayr, Dennett, and Dawkins, and the genome project, and genetic manipulation, and the possible future of humanity based upon science, this is all a product of Aristotelian logic.

We could see in Aristotle's *De Anima* the fundamental distinction made by Aristotle between mind and the life-body complex. Mind is something which he said is not influenced by heat, or by physical phenomena. Mind is capable of knowing what is. Mind grasps the essence of things because it is of the same nature as the essence of things. According to Aristotle, the essence of things is their form, and the form is the soul, which is somehow a projection or instrumentation of Mind. The form of something is what it becomes in its full development. That is the physical, vital, and mental aspect of the thing, when it is fully what it is. Then, what we know is the person, the form, the pattern, the meaning of the object. We perceive the form of the person, and the form of the animal, or the ecosystem, or the culture, and we think that we grasp what it is.

Aristotle says that this is because mind is able to extract the species, the essence. Then he asks the question, How does that happen? And that started the whole thing, the scientific project to define the processes of being and knowing. If mind can know what is; if mind can extract the

essence of things through perception, and by some magical extraction of the species; if the essential nature can imprint itself on mind because mind is of the same substance as the essence of something, its soul, its meaning, then all those invisible holons that build up a society, those layers that become that thing can be known by us as a whole because what made that thing be what it is, is its essence or form or soul. And it is separable by mind. Somehow when mind knows the soul of something it knows that thing itself. It is not just an impression that it makes on mind, or a piecing together of fragments, as we believe in psychology today, or an idea or a concept. It is the thing itself that is known by mind. Before mind knows something it is totally impassive, totally neutral, a blank slate. When it comes into contact with something through perception, with an entity, that entity doesn't enter into the mind, mind knows that entity as such.

There is a picture of Sri Aurobindo on the screen. It is not that I have an image in my head of that picture or anything else. My mind knows that thing there. Mind is somehow able, according to Aristotle, to extract from something its essence. If it was Sri Aurobindo sitting there himself, radiating supramental force, we would experience that physically, vitally, mentally, and we would also know it. The pre-Aristotelian, pre-Socratic thinkers had this phrase, Parmenides used this phrase that Heidegger quotes all the time, 'being and knowing are the same'. This is an ancient Greek notion which we don't believe at all, normally. We believe that we really can't know anything truthfully in itself, and everything we do know is interpreted and mediated. We have spoken about mediated understanding, which is normally what we think the mind does. First it makes concepts, and it knows things as a result of putting together a lot of sense experiences and concepts. According to our constructivist theory, we know that it is a photograph of Sri Aurobindo because we know what photographs are; we know that they can be projected on screens; we are familiar with the photograph of this person named Sri Aurobindo and as a result of all of these exposures in our lives we come to have a concept of the photograph of Sri Aurobindo, and know it's not Sri Aurobindo, it's just a photograph of

him, and so on, and we forget that what is actually happening here is that mind is knowing what that is.

From this Aristotelian Greek philosophy of knowledge and the nature of mind, a lot of processes of thought and perception, and theories of knowledge, have developed which are a result of that view. So much of our thinking is determined by Aristotelian concepts, as well as the structures of science, of democracy, of religion, that are all fundamentally based on Greek concepts. For modern Western society, this all started in the 12th Century with the rediscovering of the works of Aristotle, and it was going strong up till the 18th Century. When we read a philosopher like Kant or Locke or Hegel, if you look deeply into what they are saying, they are often paraphrasing Aristotle, or they are paraphrasing Anselm, or Aquinas, who commented on Aristotle. Our culture is deeply Aristotelian because of this history. And we should note that this is the spark that ignited the scientific and technological age, from maps to GIS systems, from muskets to guided missiles, from the printing press to digital information systems.

This fundamental idea or concept of mind is that mind is not life; and that the soul has three parts: it has the mind, the life-force, and perception in the middle. Living things are characterized by 1) vital activities, growth and nutrition, reproduction, 2) perception and the senses, and 3) intellect. There are three souls, or three levels of soul, in all living things. Plants are primarily of the nutritive sort, animals are primarily nutritive and perceptive, and human beings are primarily a combination of nutritive, perceptive, and ideative or intellectual. The soul which is the cause of all that, is the entelechy, that which is and knows the whole purpose of the thing. The whole purpose of the thing includes the nutritive functions, the perceptions, and the characteristic behavior and purpose of the thing.

We have been focusing here on behavior, and how behavior is an evolutionary function. The way things behave in relation to their environment is a major aspect of evolution. Genes, and the genetic

passing on of genes through reproduction, only happens as a result of successful behavioral interaction between the organism and the environment. If that is working, the genes get passed on. If it's not working then they don't. The phenotype is largely responsible for the genotype.

The question raised by Aristotle, and that has been raised ever since, is how, if mind is the final cause of everything, but is itself impassive, – it is the unmoved mover which somehow is the being of the thing that attracts it into its full nature and compels it to its purpose, – how does it do it? Science then becomes totally preoccupied with focusing this rational mind on the physics, the biology, and the behavior of things in order to try to find out how this final cause works through the other causes. We should remember that Aristotle identified four causes: the material cause, and the efficient cause (these are the ones we usually are concerned with), and the final cause, which is the total soul-nature of the thing, and the form, the formal cause goes before the final cause, as the thing that is named, the definition.

According to Aristotle these are all the causes of what is: the material stuff, the efficient (external) force, the form, and the ultimate mind-being in the universe, which is the permanent cause of everything. The Greeks were very interested in trying to find out the cause of everything, and since then, all the way up to Newton and Hegel and Darwin this has been the big question. What is the reason for anything to be what it is and to happen the way it does?

The answer has been pretty much boiled down by science to some kind of quantifiable, empirically observable efficient cause. When we think about evolution, as a result of Darwinian thought, what we think about is the efficient causes, like the environment and adaptation, and the availability of food, and the climate, the conditions of survival, within the context of the restraints of the material atoms and chemicals and organs, and so on. We don't think very much anymore about formal and final causes.

What we can see then, in Sheldrake, is the re-emergence of this idea of the formal cause of things, and the 'soul' of things determining everything, which gets co-opted by biological thinking and physics into the idea of morphic fields. Those like Sheldrake, and Capra, who try to pin down some theory of resonance, morpho-genesis, or cognition, to explain learning behavior, and the phenomena of habit, and biologists like Lorenz, observe that habit is very much responsible for what everything is and what everything does. But we have asked, Why is it necessary to have another theory like morpho-genesis - that's formative causation - to explain that in evolution, from the embryo to the full grown organism, when the genes and molecules and organs start to form, the direction in which they form is determined by the direction in which they had previously been formed? Is it because species at every level have forms, which are the result of adaptation and genetic division and reproduction, and once those processes start they result in predictable forms? The more they happen, the more that form gets established as a successful pattern or habit. And in that view, then, the whole process of evolution has been constrained not only by matter, environment, purpose, genetic variation and adaptation; it has also been constrained by morphic resonance.

Morphic resonance is supposed to explain how one species' behavior gets transferred to another species, providing continuity in the process of speciation. The theory of morpho- genesis is based on patterns of resonance that are hypothesized to explain what is already observable. Memory is there, in matter and in life. How? Sheldrake says by morphic resonance. He is adding a theory of invisible forms to explain a theory of behavior. And he says it is very much based upon the laws of physics. We may say also that it is the nature of the Chitta according to Sri Aurobindo and Vedanta.

Sheldrake's theory goes back to the theory of a person named Waddington. Waddington created a design that you might have seen; it looks like waves and troughs, and at the top of the troughs is a ball. When that ball starts to roll it goes into those troughs. His theory was

that when the embryo is developing there is this force of development which tends to go in certain directions, or pathways, that have already been taken by members of that species previously. If you go back to the previous species, from which that species diversified or descended, there is a retention of many of those troughs, but there are new troughs that have also come into being. These are conventionally known as creodes, or developmental pathways. And then they ask the question why, Why are there developmental pathways (or how do they maintain themselves over multiple generations and speciations)? The answer: Because of morphic resonance. Once those pathways get established, then they are maintained in a subtle, invisible, non-spatio-temporal world where all the forms are collected forever. That is supposed to explain learning, and habit, and memory.

Most of the progressive biological theories of evolution today are heavily determined by physics, and this one, obviously, is heavily determined by physics. The whole question of evolution is very much a preoccupation of physics these days, and of course chemistry and biology. Ilya Prigogine has a quite good theory that is commonly accepted, which says the way species maintain themselves is through the dissipation of energy. There are energy fields, that we are; we consume energy; and that energy dissipating through us enables us to maintain ourselves consistently as who we are, and what we are, and how we are. We will explore this theory in more detail later.

The dissipation of energy is a factor of life. This is a physical theory, and it supports learning. Learning is another phenomenon of behavior that is manifested by all species. So dissipation of energy alone doesn't explain life; there is also learning behavior that is going on, insight behavior among lower animal species. Cognitive behavior, perception, is going on even in single celled organisms. Biophysicists such as Capra then add another dimension to the dissipation of energy to account for learning and habit: cognition. So mind is also going on even at the lowest level of life. In between dissipation of energy and mind, there is autopoiesis, self-reproduction, the stability and continuity of the

individual form. The individual as well as the species is constantly reproducing itself, not only through cell division and sexual reproduction, but the cells are constantly remaking themselves in the body of the organism. We are making ourselves all the time – ‘autopoiesis’.

This theory of a combination of these three levels that are integrated: cognitive, autopoietic, and dissipative, (mental/vital/physical) to explain the processes of life, is apparently widely accepted in biology today (Capra, 1996). But this still does not explain the process of evolution. How does variation along a pathway, adaptation along a pathway, and speciation along a pathway actually take place? We have seen in the book of Jablonka and Lamb (*Evolution in Four Dimensions*, 2005) how there are these four strong factors in variation: genetic variation and epigenetic variation going on through chemical processes, behavioral variation going on through cooperation of organisms in the environment, and symbolic variation, or communication, which is going on within species, especially in human beings, and in inter-species communication between humans and domesticated animals, for example, but also most notably among whales, elephants, primates, bees, etc., and some symbolic communication is going on at the lower levels of life, for example in ant societies.

The big question that remains, however, for Sheldrake, for the Darwinists, and for everyone, is ‘What determines how the thing will be, which isn’t yet existing, the new thing, - and the new patterns that have been emerging forever. Some of them have taken billions of years, and others only a generation. But new patterns emerge in life, and they are generally better adapted and more successful than the previous patterns of life. What determines the pathway of success for the novel creation? Prigogine speaks about bifurcation in energy systems at the point of disequilibrium, where the new and unpredictable emerges.

Where does that cause come from?, which is very similar to the question, Where does the first cause come from, especially for

something like morphogenesis, if everything is dependent upon forms that are already resonant with other forms. Then where does the first form come from? And how does the novelty of the new form come from that, as a major variation on the pre-existing forms? We ended with that question last time.

What is the question that is left, after we acknowledge that consciousness is evolving? It is there in matter, as evidenced by perception at every level of life. Mind is there in matter. Life is there in matter, it's the strongest force. Life, mind, and matter are different principles that govern the behavior of living forms. They are all there. Everyone knows that now. Sri Aurobindo predicted that this would be recognized by science in 1920, and now you can't read a book about evolution which doesn't recognize that all three principles are active at every level throughout history, in the field of evolutionary life. Is that enough for us to know, then? Does that explain everything? Do we need to know anything else in order to understand evolution?

Before we try to finally answer that question, I want to give another example of...

The Logos – the idea that creation is intelligent. It is easy for a physicist to say today that this world and this evolving universe are intelligent. Sheldrake begins his book with a theory that I'm going to get into next time, called the 'Anthropic Principle'. In the middle of Dawkins' most recent book there is a chapter on the Anthropic Principle, and Paul Davies, who wrote *God and the New Physics* (1983), and *Superforce* (1984), and admits that there must be much more going on in the universe than what we can empirically evaluate, has a more recent book about the Anthropic Principle. The best known physicist to write on the subject was probably David Bohm (1980).

The Anthropic Principle is related to the ancient philosophical idea of the Logos. Basically it says simply that the universe has existed long enough, and the four known primary force fields, have existed in the

relationship that they exist in long enough, according to universal mathematical constants, such that carbon-based life had to emerge on earth during the last three billion years. And this is knowable by mind at this time because that's the way the universe is made. According to the Anthropic Principle - anthropos or the human being is at the center of this principle - the whole evolution of the universe isn't caused by the necessity of consciousness evolving in the human being, but is in itself composed in such a way that time and space and all the mathematical systems that explain the physical universe are necessary for the emergence of human consciousness at this time.

This is the way physicists are now looking at what was previously known as the Logos, the intelligence of the material universe. It doesn't imply any deity or any divinity or anything else. It is just that the mathematical constants of the universe themselves are necessary for the emergence of mind; therefore mind is somehow inherent in time and space.

This is a very popular way of thinking today, and there is one fantastic book titled *The Cosmological Anthropic Principle* by a couple of physicists named Barrow and Tipler (1986), which is a very hard-nosed work of mathematical physics, but in it there are a few chapters written for the biologist and for the layman. So we can get to know a little more about this theory from it. It's a widely recognized theory today; but it has become so especially in the last ten to twenty years. Sheldrake points out in his book, *The Presence of the Past*, that it has only been since the sixties that physicists and cosmologists have known for sure that the universe itself is evolving. When Einstein was around, that wasn't known, and Einstein believed that the cosmos was invariable. These are indications that consciousness is evolving, along with the many indications provided by technological innovation between 1500 CE and the present.

Evolution is a fundamental principle of existence, in the understanding of science today. Is this important? One of the questions we asked in the first class of the first series last year was, 'How does our understanding

of nature and of the principle of evolution give meaning, value, - enhance the value - of our existence?’ Can we base a philosophy of existence, including our value system, what we live for, what is meaningful to us, on this understanding of nature?

Whitehead says that evolutionary theory has been so predominant for the last hundred years that it necessarily constitutes a very integral part of our beliefs and values. And understanding it helps us to live our lives. This was a question for the philosophy of evolution. In what way does knowledge of evolution influence our values and the way we live our lives? And if it does at all, then that’s a very important part of a philosophy of evolution; not just the science of evolution, but the philosophy of evolution. It is central to some people’s lives and the way they understand existence. It may even be essential to the survival of our species. If so, Whitehead’s theory is totally correct. That is why we are doing this course. We think that it may be important for us to understand thoroughly the philosophy of evolution, if it results in helping us become evolutionary beings. Otherwise it is just an academic exercise.

Part 2 - Sheldrake and Sri Aurobindo

I want to go back now to something I talked about in the early part of the first series last year – the hox gene. Here is something well known to biology, like the behavioral theory of Lorenz and other theories that are very well known, and this one operates on a very fundamental genetic molecular level: it determines the body plan, whether an organism is a starfish or an octopus, or an insect, or a four-legged animal. In the process of embryonic development, the body plan, and the construction of specialized organs such as the eye, are under the control of such regulatory genes.

Most notable among these are the hox genes, which produce proteins that bind with other genes and thus determine their expression at exactly the right moment, so that the unfolding of the organic complex

at a certain moment in the development of the embryo is or is not a stomach or an arm. This hox gene complex has been evolving since the origin of life and is a fundamental mechanism in every creature and in every species, throughout evolutionary life. The hox genes in us have been evolving for three billion years, and they have gradually complexified so that the human being has thirty-eight hox genes in each cell. Primates have thirty-eight, and simpler organisms may have three, ten, sixteen, or whatever, but hox genes are always there and they perform that function. My question, or my observation, is that since hox genes are known to perform that function, and since they have been doing it ever since the beginning of life, and they do it the way it needs to be done almost every time - they obviously contain some kind of memory of what they are supposed to do when they are exposed to the chemical environment that stimulates their function, the epigenetic chemical stimulus, temperature, and everything that has to be just right to trigger a shift from the eye development to the reproductive organ development, in the right sequence of the unfolding of the organism. They know when to trigger each of those things. It is part of their function, it's in their matter.

So, why does there need to be a morphogenetic, or in other words a formative cause in addition to that material organic process itself? How does it help us to know the physics of attractors, this idea of Waddington who goes on to say that the morphogenetic fields are complexes of subtle organizing factors which cause the originally indefinite course of the individual parts of the germ to become definite and specific. Formative fields cause the previously indefinite genetic material to become what it becomes. It is a self-organizing principle which is not in the gene, it's in the morphic field of the gene. That vibrational field causes the originally indefinite course of the individual parts of the germ to become definite and specific, and furthermore it causes this to occur in compliance with a typical pattern. Waddington's concept of creodes canalizing development towards particular goals strongly resembles the idea of the pulling or attracting pathways of development towards ends already given by the theory of entelechy,

the soul of the form.

The mind wants to explain how this hox gene enables the organism to develop systematically in the embryo. Aristotle tried with the idea of soul: it's the form of the thing itself which is attracting and compelling all the levels of the organism to grow, up until the time the organism is a full grown mature thing. There is this subtle cause, this final cause which is the soul of the thing itself. Now instead of the soul of the thing itself being the cause of all that, or instead of the hox gene being the organic material cause of all that, there is this idea that there are troughs and attractors and basins of morphogenetic fields that attract and push and compel the organic process into its pathways.

This is an intensely fascinating idea because something is compelling these organic systems into their pathways, and they are following those pathways out of habit, which has been reproduced an infinite number of times in the species. So it is going on, this is what we know for sure; development is going on. But how is it going on? This is the thing science is trying to explain, with all of these theories from the hox gene to the morphogenetic field to the soul theory of Aristotle, and innumerable theories that try to understand how what happens, happens. But we know what happens. Why can't it just be explained by the drive of nature which itself acquires the information through evolution, stores it in its material memory (*chitta*), and remembers as much as it has acquired up till now when it is needed.

But, as much as this physical consciousness has acquired, it also knows when it doesn't know enough to solve all of its problems. There is at times a pressure to go beyond the limits of the already evolved mental-vital structures, in relation to the inner and outer needs and demands of the being. There is a drive to evolve beyond where we are now. Why couldn't that always have been there at every level of speciation, so the combination between the drive of the life force itself and the information that is being acquired every second by every cell, organ, and organism - the combination of the drive and the learning process,

the consciousness, the cognition, - why isn't that enough in itself to determine the leap? Why should there be a cause other than the drive of the organism itself? The drive itself, the life force, can be infinite and eternal, and the space-time world is temporal and finite, and the combination of that unlimited force and the limitations of the cosmos, that combination of freedom and restraint, might be enough in itself for evolution to go through all of its pathways and create new ones.

Sri Aurobindo, however, has made it clear that the next bifurcation leading to the supramental evolution has to take place from top down, not from the bottom up, which means from a higher mentality opening to a supra mentality and bringing that dynamic down into life. The human being already is able to take a leap in evolution, before there can be the manifestation of a supramental being or species, which will have completely different cells, organs, and everything else. That he foresaw, long ago, down the road. First, there has to take place an evolution of supramental consciousness in the phenome of the human being, before there is any question of genetic change and speciation.

The possibility of a supramental evolution, not just a transformation of consciousness but a genetically transformed supramental being, in relation to the history of evolution as we know it, could take place within a few hundred or a few thousand years, instead of a few million years. But first there has to be the development of the supra-mentalized mental being, which could take place in a few lifetimes. That's Sri Aurobindo's project. Sri Aurobindo and the Mother have manifested an energy which is supposed to help us transcend the mental being.

Now why is it necessary to do that? This is something that has been implied by the survey of Aristotelian thinking we have been doing. Aristotelian thinking is what we normally know of as mind, the behavior of the mental being; it's our pattern of empirical, rational understanding, ethical behavior, everything about the mental being which was known and defined by Aristotle two thousand years ago. What scientists are doing with the theory of evolution is just a spin on

that same mental behavior that's been developing, not evolving, but developing for a few thousand years. It is an understanding of the processes of nature as observed and understood by the mental being. And, as we have seen, there are aspects of its complexity that this mind cannot grasp. The process is more intelligent than the mind. But the final form of mind is attracting us toward something else than this limited form of rational mind that we know.

What we are learning, what Bergson tells us for example, is that a non-Aristotelian branch of knowledge has to evolve. Bergson, and many psychologists in the 20th Century, and Sri Aurobindo, tell us is that it's possible to take another, more intuitive track of knowledge, and to come to know things directly in themselves, rather than to have only a mediated understanding of things. We need to have an energetic integral identification with things themselves, and to know differently than the mind knows, in order to know more than the essence or form of things, in order to know actively how things actually function, because there is such an underlying intuitional cognition in nature itself, and it is an integral part of the body-life-mind-soul complex. In order for that larger understanding to emerge into consciousness, Yoga is very helpful, because it teaches us to step back from our habits of mental thinking, and our habits of vital interaction, and our habitual unconscious behavior patterns, and even our physical dependencies, and to allow this freer and more dynamic intuitive force of consciousness to radiate itself in us, through us, and bring to us - through knowledge by identity - an intuitive and creative direct knowledge of things. That would be a non-Aristotelian diversification of human thinking and of human being, on the basis of potentialities that already exist in us.¹⁴⁰

¹⁴⁰This is an edited and revised transcript of Lecture 10 in the University of Human Unity series Philosophy of Evolution (2), presented on Nov. 24, 2009.

Lecture 5

Sri Aurobindo's View

The question we ended with last time, and have ended with a few times over the last twenty-five sessions or whatever it has been, is 'Do we need some understanding, some theory other than the theories that the philosophy and science of evolution have given us so far?' We have reviewed many such theories, and I think we've learned a lot. We can probably visualize what evolution means as far as human beings understand it. We should be able to visualize it pretty easily.

We have surveyed repeatedly what could be called structural evolution, and that's mainly what Darwinian evolutionary theory is about. And we know so much about the evolution of functions: mobility, food gathering, perception, orientation, survival, child rearing, habitation building, associating with others for the sake of enjoyment, the habitual nature of the behavior of living things. And also, if we go to the next level of structure, function, and purpose, we know for what end they work the way they do. And we can measure very precisely - and biologists do this all the time these days - how efficient animal behavior is, and insect behavior, and how precisely the animal brain interprets visual imagery and other stimuli. And we know that all of these structures and functions, as Aristotle said 2,350 hundred years ago, are for a purpose.

It seems that nothing that has evolved has been literally by chance. Everything is determined by the constraints of what has already evolved, the constraints of the environment, and the pressures that bring about the necessity for a particular change along a particular pathway. That is with regard to the speciation of creatures, but even internally, when the embryo develops it develops under genetic, epigenetic, and behavioral pressures for its purposes, according to the body plan and the potentiality of the species.

So when Aristotle says that we know the forms of things, we know the essence of things, he means that the mind is able to focus on structures and forms, and patterns of behavior, and derive exactly what they are, why they are, and for what purpose. So he can say that in nature, the definition of nature is that, nothing happens without a purpose. Nature is that entity, that process of life, that happens for a purpose.

The purposes for which life happens are also well known - mostly generation, self replication, growth, stability, enjoyment, survival, and at the highest level - truth, harmony, beauty, freedom, etc. And when we survey all the examples that we have - paleontological and biological, zoological, and ethological, Lorenz's study of the behaviors of animals, and how they pass on traits to each other through behavior and not just genetics, we see that the behavior of animals is quite parallel to our behavior in almost every way. We just add a kind of veneer of value to the things that we do. We ritualize everything the way animals do and we mostly do what animals do until we get to the point of abstracting, and planning, and designing, and all of the things that we understand to be the higher functions of the mind. And when we see that more creative mind emerging on the long pathway of the evolution of life, when we see mind really emerging as the dominant evolutionary force in humanity, then we see those things that we identify more precisely with mind, such as ethical behavior. The human being is more social than any other species, and its fundamental trait is that it is capable of delaying gratification for the well being of the group.

Once we recognize the emergence of that pattern, whether it's at the tribal archaic level, or at a magical, or mythical, or religious, or rational level, we just see increasing sophistication and complexity of what is characteristically human, which is basically rational behavior. There are undoubtedly all kinds of irrational things mixed in, but the fundamental patterns we observe are predominantly rational in human societies, even killing each other. It's a highly rational behavior.

One of the reasons for that behavior is that we are not free ranging

animals. We require a stable habitat, and because we require a stable habitat over a long period of generations in order to be successful, we must secure those habitats against others who would encroach upon them. Even at this point, when the human species is capable of global cooperation, we still have a kind of vestigial interest in securing habitat. So, the Bush Doctrine which was published in 2001 or so, said something like “We will protect any country in the world that allows us to use its resources, but any country in the world which doesn’t allow that, we have the unilateral right to conquer”. This is written in a document that is called the National Security Strategy of the United States.

Our habitat now, by definition, is the globe. That’s good, because if you look at what President Obama has been doing in China and India, it’s getting friendlier. For the most part it’s cooperative now. India depends upon this kind, this brand, or this species of ethical behavior that is manifested by Americans, although it may be a very different species of ethical behavior than the one practiced historically by Indians. But they recognize in each other qualities that both need. The idea of Auroville is that all of the more sophisticated cultures of the world would come together and learn to appreciate each other’s uniqueness. And only by being exposed to complex differential patterns is it possible to perceive unity; otherwise it’s uniformity that you perceive, or that you want, but if you really see that all the different subspecies of humanity, whose behaviors are so different, are manifesting principles that are the same across the board, they just have their own cultural and traditional way of manifesting those principles, then suddenly you understand the meaning of unity. It doesn’t mean that everyone has to do it the same way. It means that the more differently people do it, the more ‘one’ it can be. And the more likely evolution will happen, at this point.

It wasn’t always that way. It was previously more necessary for cultures to combat each other in order for certain traits to have an opportunity to survive and so on, but now we are at a different stage of evolution. When we look at this schemata of evolutionary patterns and processes,

we recognize that the fundamental characteristics of all living behavior and of all of these evolutionary stages from the amoeba to mammals, when we reduce them to fundamental principles on a physical level, to processes of energy transfer, and of the dissipation of energy in order to maintain the stability of a form, we also see that all life is interested in replicating itself, in autopoiesis. And even in the individual, we are constantly replicating ourselves. Our cells are doing that all the time. We are autopoietic, - self making. And all species make themselves in relation to other species and the environment. And then, we notice that this whole process of energy transfer – the organization of energy for the sake of maintaining and reproducing - constitutes cognition, cognitive processes. Every transfer of energy constitutes a bit of information. So every movement of every living thing is at the same time evaluating its relationship with its environment, spatially for example, and evaluating its own level of energy, and how much it needs to acquire, and where it's going to acquire it, in order to grasp an immediate or longer term objective. And so, what we call logical rational behavior is on another level an energy transfer through the neurons, giving us information about our inner/outer environment. And that flow of neurons is a process of the dissipation of energy that is highly organized, focused, conservative, and intelligent.

So, when we look at this picture in the human context, we notice that today we have problems of survival: that in the last hundred years the population, which never got larger than 1 billion up until 1850, became two billion in 1920, and between 1920 and 2010 it became seven billion. Everyone can look at an exponential population graph that shows humanity going like this, a straight line, for a million years and then suddenly in a hundred years it shoots up six times higher than it was before. Mathematically as well as socio-politically, if we look at the 20th Century, we can see that the rational mind, which has characterized the whole evolution of the human species, and which is capable of absolutely incredible things, – how incredibly the spirit of knowledge has manifested in the human being in just the last hundred years. It has made available information and technology that would never have

been dreamed by any human being prior to the 20th Century. In spite of that, and because we can see this continuum of evolution for three billion years, (and if we look at it genetically the continuum is absolutely unquestionable), we come to the conclusion that something else needs to be possible. Another stage needs to be reached in consciousness because the rational mind cannot figure it out at this point. It is using too much energy to reproduce itself, and its information is not enabling it to balance itself with the environment and with the other species on earth. Something new needs to emerge. Because of this metaphor of evolutionary development for millennia, that we have been studying, we know that it must emerge.

In the last thirty years, twenty-five percent of vertebrate species have become extinct. In just the last thirty years. Vertebrate species - those are our cousins. So we are in the midst of what is known as a mass extinction event. And there have been about six or eight of these in known history, six major ones plus a bunch of other minor ones, but six major ones in the history of life for the last three billion years. So just with the information that's available to us, even without visionaries like Henri Bergson and Sri Aurobindo, we come to the conclusion that the rational ethical mind can't solve all of its problems. So either we evolve, or we head toward extinction. There is no longer any question about that. It is not something that people think about everyday, but it's very easy for anybody to think about because there is an enormous amount of information that is available, and it's constantly being updated.

There are people who are not worried about this at all. They maintain their own habitat and environment and that is exactly the principle that has enabled societies to exist for thousands of years. This is a well-established principle. It's been viable for a very long time. And you have other behavior patterns that are reversions, to revert to the mythical, and the religious, and to jack up revelation and the end of the world scenarios, where we meet judgment day and pass into the next sphere, and the USA is full of that one. And the radical Islamic version, that we may as well go to the other side because it's better than this one, and if

we can take a few with us why not. And on down the line there are people who revert back to nature, - we are going to minimize our footprint and get ready a stock pile of goods, and find a nice safe place to live off the grid and maybe we will be the flag bearers of the new species, if we can just figure out a safe way to survive Armageddon.

There are all kinds of strange ways that people have of trying to come to terms with something that science and philosophy understand very well and very rationally, and so there are plenty of people working on solutions, - solar energy and global cooperation, climate change reduction and population control, and all of these good ideas that are being understood and implemented on a large or a small scale. We have the Copenhagen Conference coming up for exactly that purpose; it started in 1992 with the Rio Summit. The primary idea was the possibility for nations to cooperate to preserve the biosphere. But, population continues to grow full speed ahead, pollution full speed ahead, extinction rates continue to rise full speed ahead, and even though the rational mind understands all of these things, somehow it is not able to really make a difference. In fact, if it reflects a little bit it finds out that it's the problem.

Then, philosophically, we've been exploring this at length. Bergson's critique of Aristotle dovetails with Sri Aurobindo's ideas completely. He says that the problem is, yes, as Aristotle said, the mind knows forms, but it can't know the matter of things, it can only know the essences and definitions of things, and then it tries to know and define everything, and it uses all of that information to create its technology and make itself more comfortable and powerful. That's what the mind does. Bergson says, 'But actually, what the mind knows is not the reality of things or the truth of things; it's just a mental representation of things that it uses for its own purposes, and we don't really know what evolution is and what's driving evolution.'

And if we think about things that have evolved, in a modular sense, like sight, vision, - that we can see everything perfectly, - that's amazing. It's

not the structure of the eyeball that sees things. We have sight, everything has sight, and we have language. There is no way to explain language as such. You can find structural patterns that make you think you've understood something about language, but in fact language is a human ability that enables us to share ideas which exist nowhere, the invisible spiritual realm of understanding is conveyed through language in a way that we all understand, and we haven't the vaguest idea of how that works. You can't explain it in terms of structure or function, or purpose, although it has structure and it has function and it has purpose. But it's language, the symbolic communication of meaning.

So the mystical inclination in human beings is to realize that what actually exists, what is, is itself quite extraordinary. This subject of evolution, if we look at it over three billion years, and at this extraordinary phenomenon of nature, and the fact that there is purpose, the fact that there is function, that things function for a purpose; the fact that there are structures that systematically serve functions and purposes, is amazing. The fact that life on this globe is made of consciousness, is itself an amazing fact that is not explained by any of those structures, functions, behaviors, and so on.

Sri Aurobindo, then, makes this inference. He says that this amazing phenomenon of consciousness that is evolving, from the one called organism that is cognitive of its environment to the most aesthetically refined human being, this evolution of consciousness couldn't be a product of quanta of energy, it couldn't be a product of life force, it couldn't be a product of the rational intelligence, because the rational intelligence can hardly understand anything, even though it is very practical and clever. This whole phenomenon of consciousness is so vast and incredibly intricate and incomprehensible, when you get right down to it, that there must be another principle of consciousness greater than mind, life, and physical structure/matter, that was there from the beginning and makes it possible that there will be a next stage. That that original consciousness-force is the secret source of all of these patterns and functions and behaviors, and that it will emerge in itself, at

its own level of quality which, he said, is as different from the human rational mind as the human rational mind is different from the ordinary mind of the beast in the forest. This principle of consciousness is prior to the evolution of material and organic and symbolic structures, - this theory is an inversion of the Anthropic Principle.

If we take the fact that in the last hundred and fifty years the science of evolution itself has evolved – that none of these things were known before that time, and in fact the genetic continuity of the species wasn't known until the 1960s – the idea of Mendelian inheritance wasn't integrated into evolutionary theory until the forties. But the continuum of the biomolecular genome wasn't known even in the forties. It has required highly sophisticated instruments to observe it and only since the eighties has it been securely known, so that we can look at any species, any bone marrow, and find out where that entity fits into the entire structure of evolution.

If we put together Bergson's and Sri Aurobindo's consciousness in 1910, their totally synthetic highly mystically inspired consciousness full of everything that was known at that time about evolution, we can put one and one together and we can see how Bergson and Sri Aurobindo were able to combine this worldview of evolution and the spiritual view of transcendence, and integrate them completely, and then say that the real driving force in evolution is the higher consciousness. And it has been moving everything along - the will of the spirit is the essential thing behind every movement, and it itself will emerge at some point in a form that is its full embodiment. Everything else along the way is temporary, partial, and eventually the supramental consciousness will have a form of its own, as a result of structural evolution, but also as its cause.

I'm going to skim through some of Sri Aurobindo's statements about this. I recommend that you read this chapter titled 'The Nature of the Supermind', in *The Synthesis of Yoga*. This is what I just said, but I was trying to put it in our context. So, he says, "It will then be evident that

though the supermind is supra-rational to our intelligence and its workings occult to our apprehension, it is nothing irrationally mystic but rather its existence and emergence is a logical necessity of the nature of existence, always provided we grant that not matter or mind alone but spirit is the fundamental reality and everywhere a universal presence."... because mind cannot emerge from inconscient matter; it has to have been there before. Inconscient matter can't emerge from nothing. So spirit had to be there before matter. Provided we grant that not matter nor mind alone but spirit is the fundamental reality..., "All things are a manifestation of the infinite spirit out of its own being, out of its own consciousness and by the self-realizing, self-determining, self-fulfilling power of that consciousness."¹⁴¹

The infinite cannot possibly be embodied, cannot be seen, cannot be known; it's infinite. We may say that it "organizes by the power of its self-knowledge", and that doesn't mean our kind of self-knowledge. It means knowledge by the Self, inherent knowing by the power of its self, knowing itself as itself, by that law of its own manifestation of being in the universe, from which everything emerges, and "not only the material universe present to our senses but whatever lies behind it on whatever planes of existence. All is organized by it not under any inconscient compulsion, not according to a mental fantasy or caprice, but in its own infinite, spiritual freedom according to the self-truth of its being, its infinite potentialities, and its will of self-creation out of those potentialities, and the law of this self-truth is the necessity that compels created things to act and evolve each according to its own nature."¹⁴²

"The Intelligence - to give it an inadequate name, - the Logos," (the supermind that thus organizes its own manifestation in time and space and under all the contingencies of time and space, under the contingencies of imperfection because time and space imply imperfection, because you cannot have change if you don't have

¹⁴¹ Sri Aurobindo, *The Synthesis of Yoga* (1970 ed.), p. 757

¹⁴² Ibid

imperfection. So, that organizes its own manifestation, not the manifestation of itself as such but its own manifestation of what is, everything that is potentially, which is not itself but of itself), "is evidently something infinitely greater, more extended in knowledge, more compelling in self-power, larger in both the delight of its self-existence and the delight of its active being and works than the mental intelligence which is to us the highest realized degree and expression of consciousness."¹⁴³ Our sense-mind, our rational mind, that is what we think of as consciousness, but to Sri Aurobindo this universe, and this planet, and this extraordinary phenomenon of conscious evolution is so infinitely more complex in its power and knowledge that we cannot possibly even begin to conceive of how everything really works.

"It is to this intelligence, infinite in itself but freely organizing and self-determiningly organic in its self-creation and its works, that we may give for our present purpose the name of the divine supermind or gnosis."¹⁴⁴

Now the transformation of consciousness that Sri Aurobindo is suggesting as the next stage of evolution is That. Then, for our purposes, we need to know how. We only need to know 'How?' A thousand years ago, we needed to know how to think logically, and a thousand years before that we needed to know how to respect kings. And a thousand years before that we needed to know how to conduct magical rites. The evolution of the eye and the stomach did not require thinking about how to help them evolve, because of the inner compulsion of the self-nature of existence. Now we are rising out of that, and into What?, is the pressing question.

Bergson and Sri Aurobindo have made it absolutely crystal clear, the difference between mental understanding and Supramental understanding, is that mental understanding knows things 'outside' that it 'represents' to itself and analyzes. Supramental understanding knows everything from inside, in its energy of being. Everything outside

¹⁴³ Ibid

¹⁴⁴ Ibid

is inside, but we don't realize that; but that is the idea, and only when we stop looking outside and depending on sight and sound, and logical inference, and surrender in a particular way to a descending power of consciousness-force, can we begin to learn to know from inside the thing which is outside. And this knowing is not representational or analytical; it is an immediate and total identity. Then, the identity of things is no longer in relation to our personality. Our personality is gone.

Listen to this, "The Yoga of perfection necessary to this change has, so far as we have been considering it,"...this change is not going to come about by itself, so far as we have understood it,... "has consisted in a preparatory purification of the mental, vital and physical nature," ...a purification of our habits of thinking and needing... "a liberation from the knots of the lower Prakriti"... and we have seen several chapters in *The Synthesis of Yoga* about the nature of mind and what's necessary in order to transition ourselves out of our normal mentality to this other type of knowing, ... the movements in us that are so established by evolution that we cannot function without them, or so we think, ...to liberate ourselves from those patterns of habitual behavior - after purifying the existing patterns of habitual behavior, then liberating ourselves from them, - with "a consequent replacement of the egoistic state always subject to the ignorant and troubled action of the desire soul, by a large and luminous static equality which quiets the reason, the emotional mind, the life mind and the physical nature, and brings into us the peace and freedom of the spirit, and a dynamical substitution of the action of the supreme and universal divine Shakti..."¹⁴⁵ The force in the plants, in the gods, and in all the intermediate levels of being are replaced by that. And from that consciousness-force, all form emerges.

Under the control of the will, the essential will of being itself, - not something outside in another world, the essential will of being itself in us and in everything, under the control of the divine consciousness-force, chit-shakti, - and that has the power to do what our mind does,

¹⁴⁵Ibid, p. 755

better than our mind could ever do it, to do what our life does, better than our life could ever do it, and even to transform our physical body into something very close to immortality, an action, a dynamical action of the divine shakti through us, – when all of those other layers are removed and replaced by a static equality, with no reaction to anything, no impulse to anything, but everything in us, and the will that makes everything be what it is in us, is surrendered to that, – that can move us; an action whose complete operation must be preceded by the perfection (purification and liberation) of the natural instruments, - mind, life, and body.

This is the dialectic of transformation, between the ordinary functioning of the instruments, the static equality, and the transformation of the instruments by that other force that is available if we would but let it act. This is Sri Aurobindo's metaphysical yogic integration of the philosophy of evolution and the possibility of spiritual transformation. According to him, this is the key to the human predicament, and all of that other stuff, all of that patching up of things that is just a temporary patching up of things by the rational mind... it is not going to be enough. The silencing and purifying of the mind and the life-force, and the surrendering of the self to a higher consciousness-force – as he said also in *The Life Divine*, is the essential first step for us to be able to do that: to put ourselves in direct contact with the Divine Reality. That means the Mother's Force, the Divine Shakti. If one doesn't find a way to do that, then all of this is just out of the question, basically.

He asks, Can this be done by the mind? "Is it to be always through the mind only, on the mind plane, or in some greater supramental formulation that is more proper to a divine action and which will take up and replace the mental function? If the mind is to be always the instrument, then although we shall be conscious of a diviner Power initiating and conducting all our inner and outer human action, yet it will have to formulate its knowledge, will, Ananda and all things else in the mental figure, and that means to translate them into an inferior kind of functioning other than the supreme workings native to the divine

consciousness and its Shakti."¹⁴⁶

We spend a lot of time trying to understand and receive and visualize, and transmit, this potential Divine Shakti mentally, and that gets us a certain way up the ladder, but that's not it. As he says in *The Life Divine*, even if we transcend the rational mind completely into illumined mind and into intuitive mind, it still isn't going to change anything. It is just a higher mind, a more luminous vision, but the world keeps on happening, life keeps on happening, the way it happens.

The opening of the higher levels of mind is a necessary process, but then he says, even that illumined intuitive mind has to abdicate to the supermind and that supermind has to build in us an instrument for action and energy and knowledge, which is superior to the highest spiritualized mind. It is another way of being. And he says that we cannot know it by any level of mind. And although we have to go up that ladder of universalizing and de-personalizing and illumining this mental instrument, still that's not it. Then, to make this clear, he says with a certain finality, "The mind spiritualized, purified, liberated, perfected, within its own limits may come as near as possible to a faithful mental translation, but we shall find that this is after all a relative fidelity and an imperfect perfection. The mind by its very nature cannot render with an entirely right rightness or act in the unified completeness of the divine knowledge, will and Ananda because it is an instrument of dealing with the division of the finite on the basis of division. A secondary instrument therefore, it isn't capable of the dynamic unity of the all in us and us in the all because it puts up this dividing screen and represents its knowledge."¹⁴⁷ It is an instrument that has evolved, but its work doesn't have much of a future. Would it recognize the more evolved? Yes, because the higher mind, and the illumined mind have truth vision.

My experience with the power of the Mother (Mirra Alfassa) was that it

¹⁴⁶ Ibid

¹⁴⁷ Ibid

was possible to see in her that the luminosity and rapidity, and accuracy and delight, that she was manifesting, wasn't ordinary, but it was not possible to understand what it was. For me personally, I witnessed it a number of times, and I could never even recall its quality from one time till the next. It was so 'other' than my experience, but it was what it was, and that in itself is something indicative of what is being spoken about. I'm sure many people had the same experience with Sri Aurobindo.

Sri Aurobindo says, if you are secure in the higher mind then you have achieved what is the goal of most spiritual traditions. So you can recognize in a Zen master that universality of knowledge and balance and sympathy and compassion and you know that that person is stabilized in that higher mind. And that's a wonderful thing. That constitutes liberation. Sri Aurobindo is saying that this liberation is just a step along the way, and what really has to happen in terms of evolution is that the supreme, all-nature of things, the supermind has itself to descend into the mental, vital, physical instrument and begin to build there its instrumentation.

The previous chapter (in *The Synthesis of Yoga*) to this one that I have been referring to on Intuitive Mind is called Faith and Shakti. When you are in touch with that force, not just mentally, but when you are in touch really with its potentiality and your mind begins to dissolve in a universal appreciation of, for example, force manifesting in all of these civilizations and beings, and consciousness manifesting in all of these individuals and groups, and you are seeing things and knowing things in terms of consciousness and force, and you are feeling that as being a universal infinite potentiality, then you must have faith that it can build its instrument in you, because you see it. But, if you are not that much in touch with it, if you don't fulfill that first requirement which Sri Aurobindo says is necessary - to put yourself in touch with that reality itself, if you haven't found a way to do that either through the Mother, or *Savitri*, or your own inner contact, then your faith is not going to be active and dynamic.

But there is a point when you become so conscious of that infinite potential in all of its little imperfect manifestations that you give up judging, and you have faith that it can work more directly through you and your relationships, and in all of these temporal imperfections, and you surrender to it. But that is a 'come and go' thing for a long time, because we keep getting pulled back into our sense of right and wrong, and our preferences, and our limited 'understanding of things', and how it is, and how it's supposed to be, and what "she said", and so on...

For the human being, for quite a few thousand years now, evolution's primary instrument has been speech. And we only know these things because Sri Aurobindo took the trouble to formulate them in a particularly powerful and dynamic way in speech (especially *Savitri*), while at the same time he was cultivating receptivity to them. And so, those who are able to hear, let them hear, and those who are able to see, let them see, because that's how human culture evolves.

Bergson (in *The Two Sources of Morality and Religion*) is very brilliant with his survey of history and how great mystics who have achieved liberation, from time to time throughout history, have brought that force itself into the current status of social development and norms of understanding and given them an impetus that has carried things forward for another period of history. According to him, all along the way of human evolution there have been these descents, these Avatars that haven't come from a tradition, they have brought into the tradition a whole new energy and possibility. And Bergson says that now, and this is in the 1930's, he says now, in this age of science and technology, when that mystical union and manifestation occurs it will bring a force of consciousness into the current level of human development that will enable the human being to transcend itself, - 1937. *The Life Divine* was published in 1940.

Can we become evolutionary beings? Can our beings be enhanced by our effort of understanding in this way? Or, is this just a mental game we play? It is possible that evolution takes place gradually over a long

period of time without human effort. Sri Aurobindo said very clearly that it could take a millennium. This new force is going to manifest, but it can take a millennium, or it can go very quickly in relation to this process of Yoga. The supramental force is working, but will the human being enhance it and amplify it and deliberately raise it to its full capacity, or will it just gradually improve the mental nature. Sri Aurobindo says that's also a possibility - that it can come to a point where mind itself is illumined and human civilization becomes a semi-transformed type of society, type of being, the superman. Or will the supramental evolve its own instrumentation through human sacrifice, human self-giving, human transformation, to the point wherein Death becomes the bridge to reincarnation on a quantum level of difference from the normal pattern.

In the Buddhist system the goal of reincarnation is to come back with compassion for the realization and liberation of others. Sri Aurobindo says that's not enough. That is fine; it is going to keep going on, but it doesn't change anything. The idea of *Savitri*⁷ is that that force enters into the mortal and prepares the mortal before death for every experience that normally happens after death. Then, when death occurs, it is a direct synthesis and rebirth on a level that is a quantum difference from the human. That is what *Savitri* is about. As such, it is the opening of an evolutionary pathway.¹⁴⁸

¹⁴⁸This is an edited transcription of Lecture 11, Philosophy of Evolution (2), 2009.

Lecture 6

Sri Aurobindo's Philosophy of Supermind

This course which is called 'The Philosophy of Evolution – Mind and Supermind' is an attempt to understand what Mind is, what its limits are, and what an evolution beyond it implies and entails. We have now come to the point at which it is possible to define that next evolutionary emergence, with respect both to how and why it is possible. As Sri Aurobindo says, 'It is here necessary in a matter so remote from the ordinary lines of our thoughts and experience to state first what is the universal gnosis or divine supermind.'

The evolution beyond mind implies a potentiality inherent in life that is not mind but is greater than it, that is to say other than it, and superior to it in its function and structure. The implication is that that potential exists. We heard an elaborate argument last time that Sri Aurobindo gives in the chapter of *The Synthesis of Yoga*, titled The Nature of Supermind,¹⁴⁹ about the necessity of its existence. Not only is it hopeful and a spiritual ideal, but from the point of view of this philosophy it is a necessity and inevitability. The inherent potentiality of something greater than mind, towards which mind is evolving, is a necessity of existence. That is not a theory accepted by scientists normally, although some do accept it, but it is a theory that is accepted by a significant segment of philosophers. Those who take it on themselves to understand - as well as humanly possible - the meaning of human existence, those people are called philosophers. And there aren't really many great ones; but throughout history there has been quite a substantial number of them, if we survey the field sort of century by century.

We have surveyed the ideas of people like Aristotle and Henri Bergson, and Alfred North Whitehead, and Sri Aurobindo, and a few others who would agree. John Locke would agree, that something greater than

¹⁴⁹Sri Aurobindo, *The Synthesis of Yoga* (1970 ed.), p. 757

mind is a necessity of existence, in order for there to be something that exists. That which is greater than mind is generally called Spirit. But Sri Aurobindo has introduced the idea that between mind and Spirit itself, there are other planes and gradations of consciousness. Mind is a subsidiary of the lower range of those planes above and the top of an evolutionary scale – mind/life/body – which exists in time and space, visibly, tangibly, perceptibly, know-ably. Mind is knowable, tangible, perceptible, as are life and body. But, he said, because of the extraordinary purposive nature of consciousness in all of its infinite diversity of manifestations in matter, and life, and mind, throughout a history of three billion years of evolution, because of that amazing diversity and purposefulness it is necessary to conclude that “there is an Intelligence, with a capital ‘I’, to give it an inadequate name, a ‘Logos’ that organizes its own manifestation in all of these planes throughout time and space”. The term he borrowed from the Veda is a Vast, a Truth-consciousness, and Truth-force, that is the secret of all that exists, Satyam-Ritam-Brhat. Mind can’t and couldn’t accomplish that vast, truth-conscious existence. We know mind well enough to know that it cannot conceive of this mechanism, which it itself secretly is. It merely acknowledges that it is what it really is, in some essential way.

I didn’t mention Heidegger in that list awhile ago, but he is also one of those extraordinary philosophers who, in the last twenty years of his life or so, after forty years of perhaps the most rigorous philosophical effort made in the 20th Century, entered into a state of, let’s say a consciousness of the radiance of being, and could at the same time reflect critically on our current general state of mind. He labored quite successfully to establish the possibilities and limitations of mind. In his later career he wrote some books about what technology, the technology of the rational mind, is doing to the human being and to language, and how it is doing it, and why it is doing it, and what this could mean either positively or negatively to our future. His commentary on the question of technology in the fifties and sixties is extraordinary. He has influenced thinking about the nature of existence, thought, and the being of man in ways that perhaps we can’t conceive.

In his philosophy, Heidegger announced that Being, the Being of all of these beings, is the real nature of human consciousness. Knowing that 'being of things' is the true way of knowing; not knowing the details in the rational way that the mind prefers, but knowing Being itself as the radiant essence of everything. After decades of rigorous philosophical thought he came to this understanding, and realized, like Sri Aurobindo and Whitehead, that poetic language is as yet the best vehicle for the expression of that consciousness.

What Bergson, Heidegger, Whitehead, and Sri Aurobindo were saying often overlaps in very interesting ways. Although Heidegger perhaps did not have the concept of the evolution of consciousness, as did Whitehead and Bergson, and especially Bergson, the important thing that is implied by this concept of evolution beyond mind is the necessity of this essential nature of reality which is other than mind, but which works similarly to mind in that it knows and does everything spontaneously from itself, because it is the being of things. It is the essential nature of things, which the 'Things' themselves will never be - the Being of things. Things are the temporal expressions of their essential being. This (hiddenness of Being) is necessary for evolution in time and space, and yet it (Being) is also destined to emerge in the process of consciousness.

There is a lot of philosophy in the 20th Century that grew out of Heidegger's thinking; people like Marcuse and critical theory, Fromm's psychology of being, and all of the phenomenologists such as Merleau-Ponty, Gadamer, Riccoeur and so on, who understood that what we know is a temporal, partial expression of what we are or what something is. We are more than what we are manifesting right now in this room and in the whole arc of our life; what we have to realize and manifest can't be measured in terms of time and space and tangible things. We are much more than any of the moments that we can gather together as an impression of who we are, even knowing everything that we are, and much more than those moments that we can gather in memory - certainly much more than I can gather from any number of

moments of your life and mine that I have experienced.

If we put all of that together and we think about life in general on the earth and how some things have actually become other things through evolution, and how some potentialities were not fulfilled by the species in which they manifested at some point, and were later more fulfilled by another species that grew out of that species, we may get the idea of an infinite potential that is manifesting over great periods of time and through infinite varieties of form. We can look horizontally at many species that seem to be working out or expressing similar principles in very different but similar ways. And we can know them genetically as being very closely related, and know them phenotypically as being extraordinarily different, and yet we can know that the principles that their lives manifest are the same.

Now that sameness that we notice in things, between things, among things, actually is not in the things; 'sameness' like 'difference' is only in the mind. But where then is mind? The sameness between differences is not a tangible, measurable thing; it is a mental thing. So if we observe and compare the way the behavior of one species – let's take a bat and a sparrow for example: if we notice the similar behaviors of bats and sparrows, and we can also add another in there, squirrels; we notice that they are all animals that fly. All three are animals. One is a four legged earth bound animal, one is a mammal that flies, and the other is an animal that flies but is not a mammal. We call it ovarian because it lays eggs. The sparrow is not a mammal, the bat is a mammal, and the squirrel is a mammal, and so there are these samenesses and differences that we can observe, such as in their nest building habits, their feeding patterns, their mobility patterns.

So we see in these three species that, in general, they all move about in a certain way, - that is the first animal characteristic noted by Aristotle, mobility. Then, they all have perception. They also have growth and nutrition, that's also a kind of mobility. They have perception, they see, and hear, and feel, and they have the ability to organize their

environments for the sake of their survival. They learn about seasonal changes, when to build their nests, when to hibernate. They have many behavior patterns that are similar, which we know about but they don't. Those similarities or samenesses of behavior don't exist outside of the mind, we may say. And yet they are not merely abstract generalizations of our minds; they exist in the patterns of the things as well. The pattern of behavior called flying exists in each of these species; that's how our mind knows about it. These patterns of mobility and the structures that support them, known as "flying", have been engineered by nature. So mind then, we might conclude, along with Aristotle, is a universal principle in existence, like life and body. It is manifested in these species in an observable way with respect to the way they organize their lives and move themselves through space; and some of them have elaborate communication systems as well, and so on.

But mind, as we know it, isn't manifested (as such) in any of those species. Mind itself is manifested in our species as the ability to perceive and know abstractly the patterns in nature that are characterized by the efficiency of design and logic of purpose. As Aristotle put it, like knows like, mind knows the mental species of things, or the general patterns. In our species it knows these patterns, and it knows how they work; it recognizes them, it can use them, it can modify the behaviors scientifically and technologically. It designs its own habitats, not instinctively but intellectually, consciously as we say, and it reproduces itself, mobilizes itself for the purpose of getting food. It protects its environments with deliberation. This life-mind-body complex of ours does everything that other animals do, including flying, but much more technologically and intellectually; mind has emerged to perform in our species, consciously, many of things that animals do 'instinctually'. Because we do all the things that they do, but we do them intellectually and on a large communal scale, - we don't just do them for ourselves but we sell them to our neighbors for a profit - we may say that we are engaged in the elaboration of a mental species of life form. The most prominent characteristic of this species is perhaps its ability to generalize abstractly about the patterns that it sees and embodies in

nature. It 'mentalizes' or 'conceptualizes' and 'judges' everything; but this certainly doesn't mean that the objects of its knowledge aren't there, embedded in the world of nature. It knows them, although it may not judge them accurately, because they are there in the forms it observes. (Let us add also that 'there', where they inhere in things, the general patterns we observe are infinite.)

What's beyond this, if anything? Sri Aurobindo suggested that because all of this is the way it is, and as we have seen through the scientific point of view, cognition is present even in the cell, therefore this mind principle is omni-present. The nervous system is producing cognition independent of us in the material stuff. We are not running that show; it is running our show. Our bodies are providing this conscious base for us all the time. The *citta* is there remembering everything, deciding everything. It sometimes also pops into our conscious minds as a logically good idea to do what it is telling us to do. We reflect most of the time on what we are already doing; we don't think ahead very much.

This cognition is obviously a potential of matter. Sri Aurobindo comes to this point and says that if cognition or consciousness is a principle of matter and if it is doing all of this in all of these infinite varieties of ways, and even in the least conscious organisms it is somehow able to anticipate and take steps beyond to what it can become, even when what it can become is not apparent even to us as we look back through species... e.g., what the shrew could become is apparent to us only with hind-sight, but it did become the hippo and the primate... If there is this inherent drive of life on the one hand, and there is this mental intelligence, "to use an inadequate expression", - if there is this universal intelligence or Logos or supermind that's able to do all of these things that we mental beings can't really understand... we still don't know how bats fly, we don't really understand the dynamics of bat flight... then, he says, there must be a greater intelligence than intellectual mind working in things, unconsciously, that can evolve itself more fully. It can emerge in another species, just as mind has emerged in our species,

with its full absolute inherent power of knowing and doing in the universe, and we are just an indication of that possibility. That higher intelligence, he says, or supermind, is so far beyond us and what we are that we can't even imagine what it is. But, he says, it's there. It's inevitable that it's there, and it's inevitable that it emerges at some point in a form, and that some living beings, a new species, will have that degree of consciousness in them, naturally and spontaneously. Then, the next question is, What is indicated with respect to the evolutionary transition that has to be taken between this mental species and that next supramental species? What is implied, and what is indicated, as an evolutionary process for human beings to get beyond mind?

Sri Aurobindo is unique in the history of philosophy in that he not only saw the nature of existence philosophically and spiritually, but he also recommended a procedure for evolving beyond mind; and he practiced it. This is described in a couple of places that I would recommend that you read in addition to chapters 3-7 in the last part of *The Synthesis of Yoga*, which are all about mind. There are two other particularly relevant chapters, 19 and 20 in that book. One is called 'The Nature of Supermind', and the other one is called, 'The Intuitive Mind'.

Sri Aurobindo states very explicitly here what the nature of Supermind is and what the intermediate possibility of the human is. The intermediate possibility of the human he calls the Intuitive Mind. I wanted to talk about this now, before going on to the Anthropic Principle, because if we can understand a little bit what this intuitive mind is, and how we can access it, then perhaps this Anthropic Principle will look very different to us than if we just hear about it rationally. I can tell you all about the Anthropic Principle from the rational scientific standpoint, but if we have the possibility of knowing things from within instead of assembling them from without, maybe we can know what this Anthropic Principle is really all about from within. If we make an effort to not know about it rationally, but to really approach it intuitively, if we can shift away from our logical, rational, perceptual mode of being humans, that thing we are so good at being and bad at being at the

same time...

Think about the possibility of knowing the Anthropic Principle “itself”, when we get to it. First of all, let’s try to know something about this transition from mind to supermind through the intuitive mind. There is no doubt that Sri Aurobindo has written those two chapters in order for us to contemplate exactly what the transition point is. There is no doubt about it: what it is, how it happens, and what are its limits, what are its potentials, what is its being, what is its nature, what the intuitive mind is. We are told explicitly. Then make a note of this, twenty years later he wrote two new, huge chapters elaborating exactly this in *The Life Divine*: ‘The Triple Transformation’ and the ‘Ascent Towards Supermind’.¹⁵⁰

What is the fundamental nature of this Supermind? The definition says, ‘It is to this intelligence infinite in itself but freely organizing and self-determiningly organic in its self-creation and its works that we may give for our present purpose the name of the divine supermind or gnosis.’ That Intelligence, capital ‘I’, that Logos which is in everything, driving everything from within is not out there somewhere. It is in here. It is nowhere else. It is not something to be discovered, or created, or whatever; it’s not some heavenly being, it’s the innermost nature of everything. “The fundamental nature of this supermind is that all its knowledge is originally a knowledge by identity and oneness, and even when it makes numberless apparent divisions and discriminating modifications in itself, still all the knowledge that operates in its workings, even in these divisions, is founded upon and sustained and lit and guided by this perfect knowledge by identity and oneness. The spirit is one everywhere and it knows all things as itself and in itself.”¹⁵¹ Spirit in us and in everything doesn’t know what it knows as something other than itself which it observes and understands. Its kind of knowing is from within because it is that. This is knowledge by identity: to know what you are, not objectively but subjectively because it is you.

¹⁵⁰ Sri Aurobindo, *The Life Divine*, Book 2, Part 2, Ch. 25,
<http://www.sriurobindoashram.org/ashram/sriuro/writings.php>

¹⁵¹ Op. cit., (1970 ed.) p. 756

The idea is that this supramental gnosis, which is not knowing in the sense that we think of knowledge, is knowledge and energy of expression of the Self in forms, which doesn't cease to be the Self in its forms. It continues to be the self of everything. "The spirit is one everywhere and it knows all things as itself and in itself, it sees them always and therefore knows them, intimately, completely, in their reality as well as their appearance, in their truth, their law, the entire spirit and sense and figure of their nature and their workings. When it sees anything as an object of knowledge it yet sees it as itself and in itself and not as a thing other than or divided from it about which therefore it would be at first ignorant of the nature, constitution, and workings and have to learn about them as the mind is at first ignorant of its object and has to learn about it because the mind is separated from its object, and regards and senses and meets it as something other than itself and external to its own being."¹⁵²

"The mental awareness we have of our own subjective existence and its movements, our 'I', though it may point to, is not the same thing as this identity and self-knowledge because what it sees are mental figures of our being, our own mind sees mental figures of our own being and not the inmost or the whole, and it is only a partial, derivative and superficial action of our self that appears to us while the largest and most secretly determining parts of our own existence are occult to our mentality."¹⁵³ We don't know all of the things that the Chitta holds in it that determines our action when we get angry because something triggers a whole long line of associations in us. We are not aware of how all of that happens. We just know that suddenly we feel offended and that is what we call our self. But supermind, he says, is much more than that kind of knowing. It knows the whole history, depth, and place in our evolution of that behavior; why that behavior is what it is at that time in relation to what we have to become through our own evolution. The whole being, not just the momentary temporal expression, and it knows it not

¹⁵² Ibid., p. 757

¹⁵³ Ibid., p. 758

objectively, but it is that movement of the Chitta, and it's also the movement of all the other Chitta and their combination. (In psychological terms we might say that the "unconscious" mind is conscious in the supermind.)

When the groups meet together in the assembly tomorrow and make a decision (whether it is the Residents' Assembly, a corporation, a Parliament, the UN or whatever), it (the supermind gnosis) will therefore know why that decision is what it is, even though it is wrong. This is a powerful idea of a possibility of knowledge that is absolute and impersonal. It is not making judgments about the way things are. It is the way things are. It can only go where it goes for the reasons that it goes there. And those becomings are far beyond any measureable, spatial, temporal expression, because the purpose of the evolution of this consciousness is consciousness itself, not the structures and momentary formations. Its own infinitude of potentiality is its essence, and that infinitude of potentiality cannot be manifested. But it can be expressed and known in everything. If one is perceiving that, and perceiving each thing temporally in relation to that infinite potential, then personal interest and judgment dissolve completely. One is merely identified with, and energized by, and loving of, what is.

"This is the second character of the supreme supermind that its knowledge is a real because a total knowledge." The implication of that statement is that what is not total is not real, it's illusory. "It has in the first place a transcendental vision and sees the universe not only in the universal terms, but in its right relation to the supreme and eternal reality." (That is to say, perhaps, in relation to that 'actual' Mind of Aristotle that is like an eternal light.) Everything that is, is in relationship to the absolute. But we don't see that. We think that the absolute, like Spencer said in the beginning of the philosophy of evolution, the absolute cannot be known by the human being. We just know that it must be there and because it's there force circulates through matter and creates form and sustains form and there's the dissipation of energy ad infinitum because the absolute is there, or otherwise it couldn't be what

it is, but we don't know what that is.

Sri Aurobindo turns that idea completely upside down and says not only is it there but we can know it completely because it is here. So there is this long interlude in philosophy where knowledge is thought of as some kind of abstract construction of the mind. The idea that knowledge is a construction of the mind is an epistemological argument.¹⁵⁴ The idea that what is known is what is by identity, is an ontological argument. This is the big shift that took place in philosophy in the 20th Century. Thanks to phenomenology, we became more interested in ontology than epistemology. The more intuitive and inspired philosophers gave up the question, 'how do we know what we know' and asked the question 'what is', period: more interesting than how do we know it, because we don't know how we know it. We can't know how we know it because how we know it is by a faculty of intuition which is not conscious in us. We are going to come to that point.

"It knows the spirit and truth and whole sense of the universal expression because it knows all the essentiality and all the infinite reality and all the consequent constant potentiality of that which in part it expresses." So, for example, it expresses the will to the realization of a harmonious and efficient human unity through tomorrow night's assembly. That is a partial expression of an infinite potentiality. It knows both the infinite potentiality and the partial expression. So it can put its full knowledge into the partial expression and not be bothered by the fact that it goes completely haywire along the way. It may have a better possibility of becoming something more lasting but even then we are only human beings at the beginning of a possibility which has eons ahead of it. And our failures, as he says again and again, are our successes. So don't worry about it, but be it. It knows rightly the relative. What we experience from moment to moment is the relative, and at tomorrow night's meeting we will know something relative to two years

¹⁵⁴ We will explore the epistemology/ontology question more thoroughly in the lecture on Gregory Bateson's view.

ago when we approved the membership of that new L'Avenir (the Auroville planning group), with all the nonsense it took to do that, and then had that approval blocked for a whole year by the stupid working committee (the Auroville admin group). Now we have another stupid working committee that's trying to undo what that working committee finally decided to do a year late. This is the partial relative nature. "It knows rightly the relative because it knows the absolute and all its absolutes to which the relatives refer back and of which they are the partial or modified, or suppressed figures."

Nothing exists which is not relative in time and space. The absolute is not relative. It is absolute. But it is knowable, outside of time and space. In the second place it, the divine supermind, which is as absolute as mind gets because it knows the absolute intimately and it knows the relative intimately and it stands between the two hemispheres, the divine Supermind is a universal emanation of the supreme, sometimes known as the Mahashakti.

"It is in the second place universal, in everything." Vibrant in the atom, in the life-force, in the self-reflection, and in the will of everything. In normal philosophical terms it is omnipresent. "It is universal and sees all that is individual in the terms of the universal." Let's think about universals for a minute. You could see everything as a process of cognition, so everything is constantly changing energy, but also learning at the same time. Then that would be a kind of universal energy plus meaning. We have talked about the spirit of healing which is active everywhere that therapies are practiced.

What is in everything, your neighbor, your routine, everything you do while you are at home, and what you are doing right now, participating in this process, - is there some principle that you can be aware of in all of those moments? Space, time, change, existence, - space means existence, how about emptiness, is space empty or full? Buddhists say you can see emptiness in everything and that is the universal reality of everything, and wisdom means seeing everything as emptiness, as

space. They also say that you can see everything as compassion, that there is a spirit of compassion that brings everything into existence and that is all forgiving, all loving, and all liberating, and that the universal nature of existence is emptiness and compassion.

I like learning. I like the idea that everything is participating in a process of exchange of information that helps it survive or helps it realize itself or gives it joy. There is a pressure in things to be conscious, to be more conscious, to act more consciously. If you can elevate your perception to that level, you can perceive everything as an expression of joy. Every particle of energy is a particle of joy. Empedocles said that love is the essential force of existence, like compassion. Or you can see everything as an expression of the Mahashakti: Mahalakshmi, Mahakali, Mahasaraswati, Maheshwari, universal divine love, power, beauty and truth.

Everything is a sacrifice. Agni, the Vedic fire. All energy transformations are sacrifices. One bit of energy serves the being of another through its own dissipation. Existence is a universal sacrifice. The supreme sacrifice has the intention to bring out of nothingness the divine. The supreme sacrifice is the entry of the absolute divine into the absolute nihil for the purpose of the evolution back, through the eons of suffering, through sacrifice, to the ultimate sacrifice of bowing at the feet of the divine herself in an act of complete self-immolation. Emptiness and compassion. That's the spiritual aspect of knowing things universally. It's a function of the higher mind which it is our task to enter, as a bridge to supermind.¹⁵⁵

¹⁵⁵ This is a transcribed and edited version of Lecture 12 in the University of Human Unity series, the Philosophy of Evolution (2), 2009.

Lecture 7

Entropy and Time

Tonight I want to introduce a notion of physics, the anthropic principle. There are several good references in our library if anyone is interested in pursuing the concept further, one of which I will be referring to, which is called *The Anthropic Cosmological Principle* (1986) by Barrow and Tipler. Another reference we will look at tonight is called *Order Out of Chaos* (1984) by Ilya Prigine. Sheldrake's *The Presence of the Past*, which we have considered in some detail, was published in 1985, so it seems that the 'Eighties' was a good decade for an interface between science and cosmology. Cosmology means the study of the cosmos, which normally means time and space and everything that happens therein – which is a very broad concept.

This is an area where physics, biology and metaphysics overlap. Physicists are trying to understand evolution. Prigogine is a physicist and a biochemist, and he makes references to Bergson, Whitehead and Heidegger, and he is very close in his thinking to us. He is widely respected in the world today as a scientist and philosopher and has a Nobel Prize.

I will read a definition of the Second Law of Thermodynamics, to start with, and perhaps we will be able to understand what 'entropy' means, following Prigogine. Both the supramental idea of power and the cosmological concept of time and energy are extremely abstract and difficult to grasp, and to have a mind to engage them directly is not a simple proposition. We are approaching the theory of evolution from both the scientific and metaphysical points of view in this course, and the cosmological anthropic principle is a concept that physicists, biologists, and philosophers have been toying with. The Second Law of Thermodynamics states that "the measure of the disorder of a system is a quantity called entropy." This law was first developed in the context of mechanics, corresponding to the conservation of energy; the First Law

states that matter can be neither created nor destroyed, it simply changes its form. But when the energy flow in systems began to be studied by a physicist named Boltzmann in the 1890s, he realized that this law doesn't explain everything that happens in the transfer of energy. It only explains energy dynamics in engines. But it doesn't explain the transfer of energy in living systems. So the Second Law is an attempt to come to terms with living systems.

It says, "At a temperature of absolute zero, all movement of atoms and molecules ceases. At that point there is no loss of energy and no entropy to measure." The idea is that things tend toward a state of equilibrium, especially mechanical things. Living systems, however, are open systems, energy flows in and out all the time, and they therefore do not tend toward equilibrium, except in very controlled circumstances. If we think about organisms, cells, societies, species in evolution, there is always energy being taken in and expended. It is unusual for living systems to reach a state of equilibrium. But in the body during sleep, when energy is not being taken in or expended, the measure of entropy approaches equilibrium. The general life style of an organism or species reaches a kind of equilibrium between the organism and the environment, the amount of energy taken in and expended is relatively balanced but it is not a static state. If the temperature is reduced to absolute zero it will be a static state. It is relatively balanced, but just simple temperature changes will affect the heat transfer of the organism, and the body's metabolism is always being maintained within an optimal range.

The definition says, "All substances above absolute zero will have a positive entropy value, or a certain amount of disorder." For example, in the house we are always trying to maintain order, but dirty dishes and laundry pile up. So, "all substances above absolute zero will have a positive entropy value that increases with temperature." If we put a pot of water on the stove it evaporates slowly, but if we turn on the flame it starts to evaporate quickly. The amount of disorder in that system is visible, the molecules are popping into the air at a rapid rate. If we don't

do anything, the pot will burn, smell bad, and disintegrate. Positive entropy will continue to increase as long as heat is added.

The sun is really puffing out entropy value at a very high level, and we use a lot of that chaotic energy in maintaining our life-systems' complexity. Here is the wonderful thing about entropy. Without it there would be no life. "When a hot body cools down, the thermal energy it loses passes into the surrounding air, which heats up." The energy has to go somewhere. It is being absorbed and transformed. Another way of saying it is that the entropy of the cooling body decreases and the entropy of the surrounding air increases; its molecules move faster and other things touched by it are also affected. "For all processes of chemical change, which is basically all processes of life in the biosphere, and throughout the universe, energy is conserved and entropy increases." This is why Time can't move backwards. Every transformation of energy in living systems is irreversible. In machinery this is not the case, it cools down to its original state. But in the universe, it never goes back to its original state. All the stars are expending energy and the universe is expanding. There is no reversibility in life processes. Life doesn't grow backwards, and the cosmos doesn't shrink. "Every process that a thermodynamic system may undergo can go in one direction only. And the opposite process, in which both the system and its surroundings would be returned to their original state is impossible." This is a universal law.

Now I will read a commentary of Ilya Prigogine on this second law. "It is no longer a question of irreversible transformations, considered as approximate to reversible transformations as in machinery. Increasing entropy corresponds to the spontaneous evolution of the system."¹⁵⁶ So, entropy is a proof of evolution. All systems evolve. The universe evolves. This was discovered in the Sixties. The universe is an evolutionary system; it is not a machine. Therefore we often hear the proverbial statement that Newtonian physics doesn't explain the universe and many things in it. It doesn't explain relativity and thermodynamics. It

¹⁵⁶ Ilya Prigogine and Isabelle Stengers (1984), *Order Out Of Chaos*, p. 119.

only explains certain closed systems. "Entropy thus becomes an indicator of evolution, or an arrow of Time." Physics can therefore explain the forward irreversible movement of both time and evolutionary life in terms of physical principles.

Evolutionary life can't go backwards even if it wants to. The dinosaurs, the age of the lizards, became the age of the mammals, as a result of pure physical laws, in addition to other things, of course. There are also life principles involved. But from the point of view of pure physical laws, the transformation from the age of the lizards to the age of the mammals is a natural, inevitable, irreversible physical process.

When we were growing up, one of the popular ideas in physics was that there would be a heat death of the solar system and everything would go back to zero entropy. That is no longer a belief in physics. The universe is expanding. Penrose and Hawking proved that there is an origin point from which entropy can be measured and it can't go back to that point. Then they figured out the rate that the universe is expanding, and there is no end to it. It is an arrow of time; the law of entropy indicates that time moves in only one direction. "For all isolated systems, the future is the direction of increasing entropy."¹⁵⁷ The future means basically increasing disorder. All systems move in the direction of increasing disorder. But disorder is relative. People get offended by the idea of "deconstruction" in philosophy, but it is not destructive. It just means that you look at everything from different possible angles, and you don't assume that there are fundamental constants with regard to ideas. Prigogine says, "Increasing entropy is no longer synonymous with loss. But it now refers to the natural processes within the system. These are the processes that lead the system to thermodynamic equilibrium corresponding to the state of maximum entropy."¹⁵⁸ Maximum disorder means stasis; the system disintegrates and dies. This is also referred to, interestingly, as the loss of memory of the initial state. Our bodies tend

¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

to recover, whenever they are sick or tired or overextended, they recover. They remember their initial state. Not the embryonic state, but psychologically we know that they try to. There is a tendency to go back to the womb state of comfort and unconsciousness. Freud discovered, correctly, that there is a death instinct. There is a tendency toward disequilibrium.

But Prigogine points out that the state of equilibrium is the state of highest probability. For example, if energy is passing between two containers of oxygen and hydrogen, and temperature causes the movement, there is a state where there is an equal amount of hydrogen and oxygen in both compartments. That is the state of highest probability with respect to where the molecules are located. There is a high probability that there will be fifty percent in each side, because as they cool down the movement reduces and the two containers tend to equalize temperature loss and gain. The state of equilibrium is the state of highest probability in a system. But if we are under stress and pressure, and we are losing energy faster than we can get it back, and we get as far as possible from equilibrium, then our behavior is the least predictable. So there is the lowest level of probability with respect to the behavior of a system at its farthest point from equilibrium. The farther the system from equilibrium, the less predictable is its behavior, and the more creative it can be.

Isn't this interesting; physics applied to society and psychology. There is an easy metaphorical transfer that makes sense. If we take the population of humanity, which is the largest it has ever been, it is probably close to its farthest possible point from equilibrium, so what it will do is highly unpredictable. Wolfram is a well-known systems theorist today, who has shown through his system of probability mathematics that the future of a system is unpredictable beyond what has already happened to it under known circumstances. Living systems are unpredictable beyond the pathways or conditions that have already been traversed. We like to be within regular boundaries so that we can predict our behavior and the behavior around us, our future, and so on.

That makes us feel good and stable.

"Irreversible processes have an immense constructive importance; life would not be possible without them."¹⁵⁹ Life is an irreversible, dynamic, open system. It takes in and expends energy. And it only approaches equilibrium. It never reaches it. When it is farthest from equilibrium, Prigogine says, there is a phenomenon that he calls bifurcation. Development of the form or energy can go either one way or another. For example, in the development of the embryo there are stages where a certain development is achieved and another has to be triggered; the molecules have to decide which way to go. They know from habit or genetics or the environment, or whatever, which way they should go, beyond that bifurcation point, and then another organ develops. Life keeps on going like this. As we grow and develop we reach points of disequilibrium where we have to decide which way to go, and then when we make the decision we adapt and adjust ourselves to a new level of energy interchange with our environment, and we recognize that energy is information. Every cell in every organism is dealing with energy transfers that tell it what it needs and doesn't need, and it knows somehow what to assimilate or reject. This process of thermodynamics evolves into a process of consciousness. Cognition at the level of cellular life is thermodynamic. Matter and consciousness obey the same laws.

This is a breakthrough in consciousness itself. As Roger Penrose says in his last book, there must be something going on at the quantum level that corresponds to what is going on at the macrocosmic conscious level. We don't know what it is, but there must be a correspondence between the microscopic level and the quantum level. This is another way of saying that the laws of thermodynamics become conscious in us because they are phenomena of mind to start with. Sri Aurobindo says, in the chapters of *The Life Divine* that I have referred to, the dynamics of matter defined by science are the processes of mind. It is mind which is doing that at the atomic level. Mind is dividing and synthesizing matter at the atomic level. It is the operation of supermind on the material

¹⁵⁹ Ibid, p. 125

plane.

In evolutionary terms, mind has reached the intellectual level in our processes of life. But long before life evolved these organisms, when there was only a cosmic soup, that was mind at that level of evolution. There is absolutely no difference between mind and atomic structure. The division of energy, the physical processes that we measure, are the processes of mind. We are conscious of so little; but Sri Aurobindo says that consciousness can evolve to the level that we do not any longer distinguish between ourselves and other selves; we no longer make a distinction between spiritual and material energy. It is all consciousness, but we don't realize it.

The Anthropic Principle

Now I will define the weak and strong anthropic principles from the amazing book I have referred to by Barrow and Tipler. "The weak anthropic principle tries to tie a precise statement to the notion that any cosmological observations made by astronomers are biased by an all-embracing selection effect: our own existence."¹⁶⁰ Everything we observe is biased by our experience, relative understanding, exposure, point of view, and so on. Everything we observe, we observe as humans. "This approach to evaluating unusual features of our universe first emerged in a paper in 1955, by Whitrow, who asked: Why does space have three dimensions? This three dimensional feature of the world is not unrelated to our own existence as observers of it. When formulated in three dimensions, mathematical physics possesses many unique properties that are necessary for rational information processing."¹⁶¹ (We should recall here Carnap's association of the process of logic with the spatial features of the world of empirical experience.)

If we are going to have a rational understanding of things, there must

¹⁶⁰ John D. Barrow and Frank J. Tipler (1986), *The Anthropic Cosmological Principle*, p. 15.

¹⁶¹ *Ibid*, p. 15-16.

be at least three dimensions. Otherwise there are not spatial relationships. Movement from here to there, subject and object, relationship in general imply three dimensions. "Whitrow pointed out that the expansion of the universe creates an unbreakable link between its overall size and age, and the density of material within it. This connection reveals that only a very large universe is a possible habitat for life."¹⁶² There is a certain density of carbon, hydrogen, oxygen, nitrogen, phosphorous, zinc, etc. which had to be forged by suns, and for these elements to come into existence the universe had to be as large as it is and to have taken the amount of time that it has to expand, in order for there to be carbon-based life. Here is the weak anthropic principle in a nutshell. "The observed values of all physical and cosmological quantities are not equally probable, but take on values restricted by the requirement that there exist sites where carbon based life can evolve and by the requirement for the universe to be old enough for it to have already evolved."¹⁶³ All of the values we give to the universe, the table of atomic weights, speed of light, universal constants, and so on, presuppose a living world, a world where life exists. If life didn't exist these things would not have any value, but as a matter of fact the values they have are the ones that make life possible.

Carbon has the highest memory capacity of any substance. It is higher than silicon, which doesn't have the capacity to form the basis of life, for reasons related to weight, atomic bonding, and so on. Carbon is the only substance, because of its weight, and its bondability, that is capable of forming the basis of life. It forms a complex geometric structure that keeps on building and building and remembering its previous forms so that even when it is broken down it keeps the same structure. Carbon is pure mind.

As these authors observe, "The cosmological anthropic principle leads to synthesizing insights that deepen our appreciation of the unity of

¹⁶² Ibid, p. 16.

¹⁶³ Ibid, p. 16.

nature."¹⁶⁴ Awareness of this principle deepens our appreciation of the unity of nature. As we said in the beginning of our course, the idea of evolution can form the basis of our value system. And that value system can be more important to the survival of human beings than any other value system. It may be the value system that determines the survival of the human species.

Let us consider some facts in relation to the conditions necessary of our existence that are dependent upon the constants of physics. "Let us consider relating the size of the universe to the period of time necessary to generate conscious observers: the requirement that enough time pass for cosmic expansion to cool off sufficiently after the big bang to allow for the existence of carbon."¹⁶⁵ We know that the big bang generated 10^{th} power of energy, and it has taken 13 billion years for the universe to cool down sufficiently for there to be at least one planet in a billion galaxies with a billion suns, that is able to support life. Because the boundary of the universe expands at the speed of light, the nuclei of carbon, hydrogen, and oxygen of which we are made are cooked by stellar interiors, but our sun isn't hot enough to produce all of the necessary elements. They have been produced by other older suns. The cosmic dust has brought together these other elements into our sun's field; when star systems burst they distribute elements through space. Based on gravitational constants, the speed of light, the mass of protons, – known as the constants of physics – we can do a calculation which shows that the universe must be as old as it is to be as large as it is. No one should be surprised by this because we could not exist now if the universe were any smaller or had taken any less time to evolve.

There is an interesting section in the book on the size of carbon and hydrogen, and why they can't be any bigger or smaller. This is a universe of mind, and the job of mind in this universe is to create all of these mathematical relationships so that life can be known and shown to

¹⁶⁴ Ibid, p. 16-17.

¹⁶⁵ Ibid, p. 18.

emerge in its thermodynamic systems and mind to emerge as an intellectual rational entity, both of which that can now evolve supermind. Mind is only an emanation of supermind in the material cosmos. But supermind can change these elements into another form of substance that is capable of universal conscious being and power. This is not a capacity of mind. Mind can align itself cosmically with a vibration that allows it to evolve another degree of substance.

The strong anthropic principle says that the universe must have those properties which allow life to develop in it at some stage of its history. If we want to add a further requirement according to Sri Aurobindo, we could add that the universe must have those properties which allow mind to develop at some stage in its history rational intelligence, higher mind, intuitive mind, and supermind.

Listen to this: "The discovery of the expanding universe in the 20th Century changed the picture of the heat-death concept. It used to be thought that all the matter of the universe would collect into one rather dense ball at a uniform temperature. But the doctrine of the spherical space and expansion of the universe has changed that. It is now widely thought that matter slowly changes into radiation. If so, it would seem that the universe would ultimately become a ball of radiation growing ever larger, the radiation becoming thinner and passing into longer and longer wavelengths."¹⁶⁶ In his classic work of speculative cosmology, the physicist Bernal suggested that "finally consciousness itself may end in a humanity that has become completely etherealized, losing the close-knit organism, becoming masses of atoms in space communicating by radiation, and ultimately perhaps resolving itself entirely into light. These beings nuclearly resident, so to speak, in a relatively small set of mental units, each utilizing the bare minimum of energy, connected together by a complex of ethereal intercommunications, and spreading themselves over immense areas and periods of time, by means of inert sense organs which like the field of their active operations, would be in general at a great distance from themselves. As the scene of life would

¹⁶⁶Ibid, p. 618.

be more the cold emptiness of space than the warm dense atmosphere of planets the advantage of containing no organic material at all, so as to be independent of both of these conditions, would be increasingly felt.”¹⁶⁷

Now we know something about the anthropic principle, and that because of it the cosmos is therefore necessarily intelligent. Richard Dawkins has some very colorful descriptions of the anthropic principle. He likes it because there is no god implied in it and yet existence is perfectly explainable in terms of physics and natural selection. He is a Darwinian materialist, and such people are also trying to envision the integral meaning of existence. There is so much information available on matter, life, and mind, at all levels now, that materialists too are beginning to see the interconnectedness and coherence of everything, and the mutual necessity and meaning of everything to everything else, and at some point they too must start radiating an empathy with all that they know. Then the materialist and the spiritualist will shake hands. And everyone will realize, as Sri Aurobindo said, that there absolutely is no god outside somewhere, designing all of this. Supermind is here and now in all of this. Everything is what it is because of That. There is no need whatsoever for any theology of external divine intervention. Existence can only be explained as its own evolutionary adventure of consciousness.¹⁶⁸

¹⁶⁷ Ibid, p. 619.

¹⁶⁸ This is a transcribed and edited version of Lecture 13, in the University of Human Unity series the Philosophy of Evolution (2), 2009.

Lecture 8¹⁶⁹

Bergson's philosophy of intuition

Bergson pointed out, toward the end of his career, that the modern disciplines of anthropology, phenomenology, and psychology were strongly influenced by his work, and he had time to see this and remark on it in his lifetime. We can only appreciate his influence if we are somewhat familiar with his work, which is one of the reasons why I want to focus on it here, and also because it has an important bearing on the evolution of mind. Bergson was an experimenter on this path of evolution and attempted to set down some guidelines, as did Sri Aurobindo.

I have previously attempted to address Sheldrake's philosophy of morphic resonance, which I would also like to review briefly here. His philosophy of evolution is based fundamentally on Aristotle's philosophy, as is mine. But there has been a tendency in the 20th Century to reduce everything to "physics", and Sheldrake's system is definitely an example of this tendency, even though he is interested in psychic phenomena and cosmology. But it seems to me that to create a system of subtle forms to explain a system of concrete forms is to commit the fallacy demonstrated by Occam in the 13th Century. It doesn't make much sense to create something abstract to explain something concrete, especially something so abstract that it can't be seen. The idea of morphic resonance is an attempt to explain memory and learning, and the phenomenon of homeostasis which enables the form to persist, generation after generation, even though there is constant change and variation going on, until finally there is an accumulation of incremental changes that allows a new form to appear, which even then retains the basic structures and principles that had evolved in the previous form. This is a law of evolution, something which happens naturally and consistently in the process of evolution,

¹⁶⁹This is an edited transcription of the third and fourth lectures in the third series on the Philosophy of Evolution, 2012.

which Darwin simply calls Nature. The attempt to explain the phenomenon of memory inherent in matter by the theory of morphic resonance isn't necessary if we accept that memory is a fundamental principle of the material universe, as represented by the idea of *citta* in Sankhya philosophy.

We have reviewed Sri Aurobindo's Sankhya philosophy, presented most fully in Chapters 3, 4, 5 of *The Synthesis of Yoga*, in which the phenomena of memory, perception, and reason are shown to be fundamental aspects of mind rooted in the organic manifold, and we pointed out that matter itself has these three potentials of consciousness in it. We have a living manifold here, - in the human form - which carries on the activities of memory, perception, cognition and telepathy, so why do we need a system of subtle energies to explain what is happening, rather than to admit that what is happening contains the principles in itself? When we arrived at the idea of the "supramental knowledge" at the end of the previous lectures (6 and 7), we found that the way species maintain their consistency, and vary, and the way speciation takes place, and the way all of life unfolds, can only be explained ultimately by the intuition of the fact that it does it; the Self brings forth from itself, creatively, its potentials. The fact that a member of a species goes through all the same developmental stages that all of the other members of its species go through, and fills the niche in the biosphere that it has evolved to fill, indicates that the continuous reproduction of a species in association with other species is an expression of a potential, in a finite form, that fits homestatically and homeotelically with itself and all the other species, to maintain the evolutionary field "in and of itself". The field manifests its forms.

Here we come to the fundamental principles of Indian psychology and cosmology: that there is Self and Nature. Nature is the expression of the Self which becomes conscious of itself at some point, but which is in any case "Consciousness" itself. In its infinite potentiality it is evolving on the physical, vital, and mental levels of existence, because it is 'what is'. To add a principle of morphic resonance as a subtle causal pattern inside

things to explain what they are outside is simply unnecessary. And yes, this is a reduction to physics, or to principles that appear to be physical, which is a pattern in scientific thinking that has been going on for several centuries. We see something similar in the anthropic cosmological principle, which is being referred to popularly today in order to account for the emergence of consciousness and life within the context of a physical universe bounded by and defined by certain universal mathematical constants. It is a convenient causal explanation in order to avoid dealing with the idea of god or of metaphysics, which wants to explain something essentially spiritual by something essentially material. This is what is meant by “reductionism”. Everything is reduced to a plane of materiality and at the same time everything is explained by that principle.

What we will hear from Bergson and Sri Aurobindo is that Consciousness is prior, and these materialistic arguments have it all backwards. Bergson begins his thinking, and pursues it consistently for many decades, with the idea that there are basically two streams of thinking that the human being has evolved. There is the scientific, rational stream, and there is the intuitive, creative stream. Each has its own laws, and products, and importance. But our tendency is to rely almost exclusively on the materialistic rational stream because it enables us to organize and use material life. It is the practical mind, known in Sankhya philosophy as *manas*.

When we come to Darwin and post-Darwinian thinking, we find more and more frequently a recognition of the principle of creativity, and it is something other than the practical, rational intelligence. The problem is that all structures and functions on the horizontal plane can be described and explained rationally in terms of homeostasis, variation, adaptation, and selection, and Nature seems to have used these principles to produce all of the structures and functions of organisms. But there are vertical changes that are more than that; for example there is the emergence of the mammalian generation after the reptilian, the age of the dinosaurs. That is a vertical development, a leap in quality

and complexity. The mammalian generation is a manifestation of "mind". In the first series of lectures we often referred to the work of Konrad Lorenz who has shown innumerable examples of how all the higher animals behave similarly and are capable of generalization. This is the fundamental feature of mind; we categorize and generalize based on a certain constancy of experience from which we eliminate the contingencies and stick on the constancies, which we know as forms, things, principles, generalities. What we "know" are generalities. We know what a chair is. We don't need to enumerate the vast variety of chairs we have seen in order to know this. We know the structure and functions of restaurants and museums and skeletal structures, etc. We focus on the generalities and abstractions which we call "knowledge".

In Sankhya philosophy this is a step above *manas*, which is sense perception and intelligence that all animals have; it is the *buddhi* which is the function of mind that makes rational choices, and theories, and systems. It is the higher mind, higher reason, which does the same thing as *manas* and *citta* but on a more abstract level. Animals know things in terms of categories based on repeated experiences from which they learn, but they don't have symbolic systems that help them remember and compare and analyze their experience. They just accumulate knowledge and act accordingly. They behave in predictable ways in the presence of known stimuli, but if the stimuli change the behavior will not be predictable. They do not transfer from one situation to another as quickly as we do, but have to relearn in the context of new stimuli. They are more present-bound than we are, and sensation and response bound, which is the principle of *manas*. We not only remember and transfer, but the *buddhi* is also rational. In the study of logic, Carnap has demonstrated that logic is largely based on spatial experience. It relates this point to that point and refers back to this point and reaches its conclusions based on logical, spatial relationships.

When we discuss the possibility of evolution beyond mind, we must have enormous respect for Nature having evolved that animal mind on the basis of the general disorder of matter. We are not rejecting that,

but we are recognizing a dynamic in Nature that needs to move beyond the limits of rational mind. It has been fully developed and explored and it has brought us to this point. But we are beginning to feel the need to evolve beyond it because there are problems that it cannot solve. And we have an intuition of a realm of imaginable beauty and power and bliss that could be expressed in energy fields that currently don't have common forms of expression, although they sometimes break through. Those acts of genius that we can perceive are indications of a realm of consciousness and expression that is generally out of reach but that can become normal. And how do we explain the existence of that realm? This is the subject of Supermind. Sri Aurobindo's philosophy is a philosophy of Consciousness involved in matter, life, and mind, having emerged in those levels of evolutionary expression, but in its origin and function it is much more complex than anything we can now perceive or imagine, and it can achieve things that we cannot do, or understand, and does it with an amazing persistence and efficacy, which is beyond the power of mind as we know it.

We have to admit that there are many things in Nature that we just do not understand, like evolution for example. We can pinpoint stages of it and relate them to each other, which Bergson will tell us is the spatialization of mind; we are interpreting movement in time in terms of movement in space and missing an important feature of reality called Time. Time, as he defines it, is the intensity and duration necessary for something to be what it is. In order to put consciousness in direct touch with the duration and intensity of the being of the thing that is known requires something other than this fragmentary spatialization and analysis that the rational mind does habitually. Bergson is right to advocate an effort to achieve a direct perception of the creative flow of what is, rather than being preoccupied what we think about what was, which would entail a shift from the normal function of rational intelligence in the direction of intuitive mind. To understand something about what Bergson calls intuition, let us have a look at his text. (This text is from a lecture in 1920 that Bergson included in a collection published in 1934, titled in the English version, originally published in

1946, *The Creative Mind*.) There is value in referring to text, because with people like Bergson and Sri Aurobindo the text is more than text: it is the process of the mind discovering 'what is'. If we follow him a bit, we may have our consciousness entrained to this track of thinking that he calls intuition.

"I should like to come back to a subject on which I have already spoken, the continuous creation of unforeseeable novelty which seems to be going on in the universe. As far as I am concerned, I feel I am experiencing it constantly."

Now... unforeseeable novelty. We are usually stuck on what we have experienced and on what we know to be consistent with our experience and understanding, and what we are usually not doing is experiencing the on-going novelty that is being created right now. This thing that is happening now is something new. This energy that I am generating to bring these ideas into focus is something that I have been working on since 2009 and for me it is a continuum. I am able to say what I am saying and to create a kind of framework of understanding because of something that Bergson started in 1920 that goes back to Aristotle. When I read something from Aristotle in a moment, it will be a novel creation of something that began 2350 years ago and we will see that it hasn't died. It has continued to evolve and diversify. And, as I have said many times, the whole of modern civilization is based on Aristotelian thinking. This view of the moment, as we will see in text from Sri Aurobindo in a moment, is a view of possibility, actuality, and eventuality, all together. In order to have that view it is necessary to not pin things down to spatial moments that have already ceased to exist.

"No matter how I try to imagine in detail what is going to happen to me, still how inadequate, how abstract and stilted is the thing I have imagined in comparison to what actually happens! The realization brings along with it an unforeseeable nothing which changes everything. For example, I am to be present at a gathering, I know what people I shall find there, around what table, in what order, to

discuss what problem. But let them come, be seated and chat as I expected, let them say what I was sure they would say: the whole gives me an impression at once novel and unique, as if it were but now designed at one original stroke by the hand of an artist. Gone is the image I had conceived of it, a mere pre-arrangeable juxtaposition of things already known! I agree that the picture has not the artistic value of a Rembrandt or a Velasquez; yet it is just as unexpected and, in this sense, quite as original. It will be alleged that I did not know the circumstances in detail, that I could not control the persons in question, their gestures, their attitudes, and that if the thing as a whole provided me with something new it was because they produced additional factors. But I have the same impression of novelty before the unrolling of my inner life. I feel it more vividly than ever, before the action I willed and of which I was sole master. If I deliberate before acting, the moments of deliberation present themselves to my consciousness like the successive sketches a painter makes of his picture, each one unique of its kind; and no matter whether the act itself in its accomplishment realizes something willed and consequently foreseen, it has none the less its own particular form in all its originality. Granted, someone will say; there is perhaps something original in a state of soul; but matter is repetition; the external world yields to mathematical laws; a superhuman intelligence which would know the position, the direction, and the speed of all the atoms and electrons of the material universe at a given moment could calculate any future state of this universe as we do in the case of an eclipse of the sun or the moon. I admit all this for the sake of argument, if it concerns only the inert world and at least with regard to elementary phenomena, although this is beginning to be a much debated question. But this "inert" world is only an abstraction. Concrete reality comprises those living, conscious beings enframed in inorganic matter. I say living and conscious, for I believe that the living is conscious by right; it becomes unconscious in fact where consciousness falls asleep, but even in the regions where consciousness is in a state of somnolence, in the vegetable kingdom for example, there is regulated evolution,

definite progress, aging; in fact, all the external signs of the duration which characterizes consciousness. And why must we speak of an inert matter into which life and consciousness would be inserted as in a frame? The ancients had imagined a World Soul supposed to assure the continuity of existence of the material universe. Stripping this conception of its mythical element, I should say that the inorganic world is a series of infinitely rapid repetitions or quasi-repetitions which, when totaled, constitute visible and previsible changes. I should compare them to the swinging of the pendulum of a clock: the swingings of the pendulum are coupled with to the continuous unwinding of a spring linking them together and whose unwinding they mark: the repetitions of the inorganic world constitute rhythm in the life of conscious beings and measure their duration. Thus the living being essentially has duration; it has duration precisely because it is continually elaborating what is new and because there is no elaboration without searching, no searching without groping. Time is this very hesitation, or it is nothing. Suppress the conscious and the living (and you can do this only through an artificial effort of abstraction, for the material world once again implies perhaps the necessary presence of consciousness and of life), you obtain in fact a universe whose successive states are in theory calculable in advance, like the images placed side by side along the cinematographic film, prior to its unrolling. Why, then, the unrolling? Why does reality unfurl? Why is it not spread out? What good is time? (I refer to real, concrete time, and not to that abstract time which is only a fourth dimension of space.) This, in days gone by, was the starting-point of my reflections. Some fifty years ago I was very much attached to the philosophy of Spencer. I perceived one fine day that, in it, time served no purpose, did nothing. Nevertheless, I said to myself, time is something. Therefore it acts. What can it be doing? Plain common sense answered: time is what hinders everything from being given at once. It retards, or rather it is retardation. It must therefore be elaboration. Would it not then be a vehicle of creation and of choice? Would not the existence of time prove that there is indetermination in things? Would not time be

that indetermination itself?"¹⁷⁰

The point of the argument is that existence is creative; this universe is creative. And it is creative of itself; it is its nature to be creative. Now, can we know how and why specific limits occur in the process of creation, and how and why those limits get exceeded? Think about your own limitations. Can you know how and why you have the limitations that you perceive that you have, and how and why it might be possible to exceed them?

Well the answer is "yes, you can" and it requires a certain amount of analysis and contemplation and focusing yourself on your actual inner life. You can similarly focus your consciousness on the inner life of things around you, and you can start to perceive the nature of things as they are in themselves, without imposing on them judgments and preconceptions. The mind you already have is capable of this kind of identity and expanding beyond the confines of your cranium and your mortal experience. Your consciousness has this ability because it is also in those things; you don't own it. It isn't trapped in your cranium. Consciousness is a field, and the idea of Supermind is that mind and life and matter are fields, sometimes called planes, and we are in them and they are in us. The whole basis of Sankhya and Yoga philosophy is the idea that when we think that all of that is limited to this ego and its experience, this is an illusion. We have the illusion of the mental ego, the *anatakarana*, which bases everything on its own perceptions and limited experience, and it is practical to do that. This intelligence that pins things down in terms of spatial time is practical and it is social; it enables us to function successfully in society. As Bergson tells us, this practical intelligence which enables us to function in society is a product of social evolution.

It is a convenient rationalization to believe that what we see and feel and know is the truth, and that it is better than any other truth that can be imagined. It is a useful illusion. It enables us to justify, for example,

¹⁷⁰Henri Bergson (1946/2007), *The Creative Mind*, (p. 73-75).

going to war for the sake of territory or petroleum. But our bright new evolving consciousness tells us spontaneously that this illusion is not sustainable. We have filled every niche on the planet, which no other species has done before us. Other species have become extinct before that happened and have been replaced by new species that fit into a relative niche. But the human species has discovered how to innovate and adapt endlessly to every possible habitat.

When we come to Sri Aurobindo, we will encounter the possibility that the principle of Mind is not a only a principle in the abstract sense, but it is something that explains everything else. He recommends that we begin to perceive things in terms of universal principles. We should make an effort of consciousness to not see things in terms of momentary particulars on the basis of which we make judgments, but that we teach ourselves to view even ordinary experience through the lens of universal principles. For example, right now in millions of classrooms there are people speaking to other people to bring about a common focus on values that they believe to be important. This is a widespread phenomenon of human culture, which is very essential. It is called teaching and learning: education. It is the human version of what is going on in every organism when they sense heat and cold and move in this or that direction; it is information processing, the utilization of energy for the purpose of survival. It goes on in every cell of life and it goes on at a very sophisticated level in graduate medical institutions where people are learning to perform brain surgery, for example. We are engaged in a phenomenon which is the product of certain universal principles such as propagation of values, goal oriented behavior, seeking understanding and harmony, and at the highest level we could call it Mahasaraswati, the principle or god of radiating universal beauty and knowledge through the products of culture and art and learning, in all of their diverse forms of expression. It is an actual energy of creativity, a divine Shakti, which we can celebrate and recognize in many forms – for example, in the form of the biosphere which is resonant with Mahalakshmi creating her wealth of energy and beauty and diversity throughout nature. We shouldn't reduce our experience of life to the

most mundane and meaningless sensations and perceptions. We should expand consciousness into the realm of universal energy fields that have meaning and purpose.

Sri Aurobindo recommends that first of all we analyze very carefully how our minds work. And within that field, we should be aware of how our will works to enact the things that our mind tells us, and then we should create some space within that field of perception of our own manifold, in which we can discover the Purusha or soul, and perceive in that soul-space, which is silent and empty, everything which is there, without any response or reaction. Then we can actually know 'what is there', the being of things can be known, directly and intensely, in us and beyond, and at the same time we do not think, make judgments, react... we perceive in the self what is there. The self is that. It is a mistake to think that the self is this time-bound, space-bound, experience-bound, personality-bound entity that has our name and birthdate and photograph on the passport. This is the first step that Sri Aurobindo recommends in the transition of Mind to Supermind. Let me prove it with a quote:

"The witness Purusha in the mind observes that the inadequacy of his effort, all the inadequacy of fact in man's life and nature, arises from the separation and consequent struggle, want of knowledge, want of harmony, want of oneness. It is essential for him to grow out of separative individuality, to universalize himself, to make himself one with the universe. This unification can be done only through the soul by making our soul of mind one with the universal mind, our soul of life one with the universal life-soul, our soul of body one with the universal soul of physical nature. When this can be done, in proportion to the power, intensity, depth, completeness, permanence with which it can be done, great effects are produced upon the natural action. Especially there grows an immediate and profound sympathy and immixture of mind with mind, life with life, a lessening of the body's insistence on separateness, a power of direct mental and other intercommunication and effective mutual

action, which helps out the now inadequate and indirect communication and action that was till now the greater part of the conscious means used by the embodied mind."¹⁷¹

Sri Aurobindo will explain that this is the entry into the intuitive mind, the direct perceiving of the universal truths of things on all the planes on which we reside. And Bergson says that this is a perception of the duration and intensity of the creative becoming of things. We begin to perceive things in terms of the intensities and durations of what they are, instead of our prescreened conceptual understanding of things. There is another way of knowing that needs to gain some foothold and be entrained and habituated so that when we act in the world it is on the basis of that becoming and novelty and creativity instead of on the basis of something that has already happened and its past usefulness and understanding.

But before going further into Sri Aurobindo's philosophy of Supermind, I wanted to review a bit of Aristotle. For the sake of winding up the subject of 'what mind is', I wanted to go back about 2000 years. We have heard Sri Aurobindo on the principles of *citta*, *manas* and *buddhi* from Sankhya philosophy, which can be understood as the patterns of unconscious memory and response on the physical level (*citta*), the sensations and perceptions of the practical mind (*manas*), and the rational faculty of abstraction and ethical judgment (*buddhi*) which emerges on the basis of the *citta* and *manas*, with the possibility that it can gain a leverage that enables it to bring down the higher consciousness-force into the lower levels of mind. Then we are on the path of understanding what mind is, in order to know what the transition to Supermind might mean. Now, it has become legitimate to ask how and when this transition can be made? And we have heard from Sri Aurobindo that the universalization of consciousness is a first step. Now what is the basis in the reality of nature and consciousness that makes this transition possible?

¹⁷¹ Sri Aurobindo, (1948/1970), *The Synthesis of Yoga*, p. 614-615.

In an earlier lecture, I quoted from a book of Aristotle titled *De Anima*, *On the Soul*, from which we learn that there is a perspective, or way of understanding things, that was prevalent over 2000 years ago and that continues to hold our attention. It has recurred in the 13th Century, and the 15th Century, and the 18th and the 20th Century; we have just heard it again in the passage we read from Bergson, and it seems in fact not to just belong to the past at all. Aristotle said, "Every class of things is made up of a matter which is potentially all the particulars included in the class." This says that carbon, oxygen, hydrogen, and nitrogen are included in all members of the class of quadrupeds. That material base potentially can become what all living things are. "It is a cause which is productive in the sense that it makes them all. These distinct elements must likewise be found within the soul. Mind, as we have described it, is what it is by virtue of becoming all things. While there is another which is what it is by virtue of making all things. This is a sort of positive state like light. For in a sense light makes potential colors into actual colors. Mind in this sense of it is separable, impassable, unmixed, since it is in its essential nature activity. For always the active is superior to the passive factor, the originating force to the matter which it forms. Actual knowledge is identical with its object."

So the originating force is mind, and it is matter that is formed into the elements and higher life forms. This is a fundamental belief of the ontological, intuitional stream in philosophy, and it is fundamentally opposite to the belief that is prevalent in analytical, scientific philosophy. I have heard it said many times that the mind cannot know what is going on in another mind, it can only construct from observed behavior an idea or impression of what is going on there, and then it preoccupies itself with the construct. The intuitive point of view says that mind is identical with the object that it knows. This is because, as Aristotle says, mind can become everything and mind causes everything to be what it is. So there are two poles of mind. One is the actual energy and active pole of everything, and the other is the principle at work in things to get knowledge and grow and develop into what they potentially are. This is the passive pole of mind, and the other is the

active, unmixed, pure, radiant principle of mind.

Then Aristotle says, "Actual knowledge is identical with its object in the individual. Potential knowledge is in time prior to actual knowledge in the individual. But in the universe as a whole, (potential) knowledge is not prior even in time. Mind is not at one time knowing and at another not knowing. When mind is set free from its present conditions it appears as just what it is and nothing more. This alone is immortal and eternal and without it nothing thinks." Then he will say that soul is the entelechy that drives the material form and vital form to have sensations and grow and reproduce, and soul is in mind on the mental level knowing the objects it perceives and thinks about. The evolving mind is thought of as the soul or essential entity in the physical and vital and mental being performing or becoming at each level the essential nature of what is seen outwardly as form. When the form is known, it is known by the level of soul we call mind, and it is knowable because it is the product of Mind. Each thing is what it is because of this essential nature of it, which is knowable. What is not knowable is the matter as such. The matter of stone is not taken into the mind, which is a pure spiritual entity, but it knows the stone in terms of its type, quality, structure, which is "stone".

This is obviously very similar to the idea of Purusha and Prakriti; that Self and Nature are not separate but they are separable. We can draw back the soul from its involvement in matter and life and mental behavior and experience it as a pure being. This is the meaning of liberation in Sankhya and Yoga. And when that is done, this Purusha is capable of ascending into the level of Param Purusha which sees itself in all things, and it **is** in all things. Then it has a choice. It can involve itself in Prakriti, the forms and processes of Nature, or it can be dissociated from and liberated from Prakriti. If the former, it thinks of itself as the form, behavior, sensation, and loses sight of itself as such; if the latter, it withdraws and experiences itself as pure Self. Then, says Sri Aurobindo, in an important modification of the traditional Yoga teachings of Patanjali, the Param Purusha can re-enter mind, life, and body without

losing its sense of pure Self and can transform these instrumental levels into the pure, inspired, luminous energy of a transformed Prakriti. Then it can be said that Purusha and Prakriti become one on all the levels of being.

Aristotle apparently didn't see this possibility, (nor did Patanjali, although it seems to have been seen at various moments in the Hindu tradition), but he did seem to have an idea of the identity of the soul that forms the matter and the soul that is intelligent in the creature with the higher universal Mind that is manifesting through the soul on all its levels, and which enables mind to experience a gnostic identity with the objects known. Then Sri Aurobindo tells us that the term *vijnyana buddhi* in Sanskrit means gnostic consciousness, and this is a term that comes from Plato and Aristotle. This *gnosis* is the identity between the knowing and known. We gather that the Greeks were seeing something like the idea of the Supermind, or *vijnyana*, although the idea of its descent and the transformation of the lower levels of the soul and nature had not occurred in the original formulations of either tradition.

In the development of my thinking about the philosophy of evolution, this metaphysical or spiritual level of understanding isn't necessarily prior to our knowing what evolution is about, but it does follow from a certain understanding of evolution, and eventually we come to the higher metaphysical understanding, as I think we can see in Bergson and Whitehead for example, who were not aware of the philosophy of Supermind. However, the idea of evolution being driven by an eternal energy or light, *nous*, in Plato and Aristotle, is not much different from the idea of Supermind; there is quite a perfect blend of these systems of thought in Sri Aurobindo.

Lecture 9

The Platonism of Whitehead and Sri Aurobindo

I have noticed a pattern in the continuum of these lectures on the philosophy of evolution, of which there have been thirty-five: there has been a tendency to repeat a particular theme twice, in two consecutive lectures, and that will be the case in these last two lectures.¹⁷² That hasn't been a deliberate thing, but it is a pattern that I can see now in looking back. And part of the reason is that there has been a lot of material to present, as there is today, and a limited allotment of time.

The purpose of presenting this material is to help us think in terms of evolution, and to participate, in some way, in evolutionary thinking. There have been a few thinkers in the 20th Century who have really devoted themselves to evolutionary thinking. They have had the idea that the evolution of mind, and beyond mind, is what is happening in the human being, and the mind is somehow a key to that movement. What I would like to point out today, definitively, is that this movement of evolutionary thinking originates with Plato and Aristotle. I could not have said this so definitively before today, so for me this process has been very fruitful. I have approached this project on the philosophy of evolution with the purpose of discovering something, and I have come to the conclusion that Aristotle's thinking is not something that belongs to the past. It is something which has experienced many rebirths in the last 2400 years, and in the work of the philosophers we are considering, Sri Aurobindo, Heidegger, Whitehead, and others, Aristotelian thinking is still very much alive.

¹⁷² These are the concluding lectures (9 and 10) of the third series of the University of Human Unity lectures (3.5 and 3.6) on the Philosophy of Evolution, 2012, which brings the total to 36 in all since 2008. The first twenty-five are available as audio files on the website. An intermediate series of six lectures on Bergson, Teilhard, and Gebser, in 2010, has not been included in the final version, and of this last series of six lectures, three have been included. www.universityofhumanunity.org

For example, we may look at something that Darwin said, which goes back to a lecture at the very beginning: "It may be said that natural selection is daily and hourly scrutinizing throughout the world the slightest variations, rejecting those that are bad, preserving and adding up all that are good, silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life. We see nothing of these slow changes in progress until the hand of time has marked the lapse of ages, and then so imperfect is our view into long past geological ages, we see only that the forms of life are now different from what they formerly were."¹⁷³

As I have pointed out many times, Darwin did not have at his disposal anything like the geological fossil record that we now have. Geological time had just been discovered by his cousin Lyle. Since that time we have also discovered the genome record and we know about the continuous and unbroken development of life from species to species. And we know today that 99.9% of species that have ever lived are now extinct. So we know a lot of things that Darwin did not know. But that statement that he made is a very Aristotelian statement. There is an intuition that philosophers and philosophical scientists have had periodically throughout these past 2000 years that somehow matter and life embody a higher knowledge; that everything that happens in time and space is an evidence of the Logos. In Greek thinking the *Logos* and *Phusis*, the relation between reason and nature-force-energy, was a problem to be understood and solved. It was an intuition that Plato had in a very brilliant way and that Aristotle attempted to apply to the study of nature itself. (It has been pointed out that in the history of Western thought there has been a schism in the interpretation of Platonic and Aristotelian thought, but in my opinion that is a schism in interpretation, and not a schism in the thought of Plato and Aristotle.)

What I have discovered in my study of Plato and Aristotle and various 20th Century as well as medieval interpreters is that there is an essential

¹⁷³ Charles Darwin, *The Origin of Species* (6th ed., 1872) p. 126

intuition of the relationship between spirit and matter that runs throughout this tradition. And there has been a compulsion to define the necessity of that relationship in terms of the manifestation of forms in time and space. How are we to understand the fact that the movement of energy in time and space has the form that it has, and that organs made of molecules and cells produce an awareness of what is there in reality? This has been a preoccupation of philosophy throughout these centuries, and it is a truly perplexing problem. How is it that consciousness happens to pervade this material/vital/mental frame of existence, and that nature is apparently intelligent and purposeful? We can't perceive directly how this field of sensations and perceptions that we and all animals have access to gives us information about itself which we are able to use to execute plans successfully, in the context of nature, without any difficulty. To explain adequately how consciousness has emerged in this material field, and how it knows that field quite accurately and can use it successfully to achieve whatever aims it can conceive, is the challenge for philosophy. It isn't enough for a philosopher to just take all that for granted. And it presents an almost intractable problem. You will find plenty of books on the shelves today that are trying to explain consciousness. And massive amounts of research, time, and energy are being invested in trying to understand this phenomenon. So it hasn't gone away; it has persisted throughout these centuries.

What we will see today is a close parallel between the Sankhya philosophy and classical Greek philosophy in the thought of Sri Aurobindo and Whitehead. In the idea of Purusha and Prakriti, that there is a Self that is the infinite and eternal reality of things, and those things are the products of Nature, and that there is an identity between these opposite principles, the knowing Self and the expressions of form in Nature, we can recognize, and there is in this structure of thinking something that is quite identical to the ideas of Plato and Aristotle with respect to Spirit and Matter. This way of thinking predominated that period of time, perhaps because people didn't have so many distractions, and scientific technological thinking hadn't created such a

massive alternative reality. So now we are, as Bergson pointed out, we are completely taken in by our frame of understanding of things and our frame of the manipulation of things derived from our frame of understanding. And that frame has become the reality that occupies human consciousness; its own interpretations and applications of abstract thought now occupy the mind almost exclusively. But in those days it was still possible to have a continuous intuitive grasp of all the levels of being itself: the being of nature, the being of society, the being of mind. These realities were much more accessible two thousand years ago than they are today. Today we understand those things in terms of what the media tells us about those things.

You undoubtedly thought about coming here this morning sometime during the week, I thought about coming here this morning for most of the day yesterday; a process of prevision has been going on about this event. We were able to conceive ahead of time of this happening, this event which is now occurring here in this space-time framework. And as I pointed out last week, for me this process of thinking ahead and then experiencing a unique event as a result of that thinking ahead, in this context, has been going on for several years. So we are engaged in a creative time-energy continuum that, as Bergson says, is quite other than our conception of linear time with respect to what we did then and what we are doing now and how we measure the difference and make judgments and decisions about what we accept and reject, etc. We could have made choices other than the ones we made, and in fact there are innumerable possibilities. But, aside from those considerations, we are actually present here, and it is a unique event. As Sri Aurobindo says, we are able to conceive of the potential, the actual, and the eventual, quite naturally. We live in this extended time continuum and we don't even think about it. It is natural. And yet there is a dynamic, creative aspect of this flow that we tend to reduce to fragments associated with spatial boundaries. This is Bergson's fundamental insight, and it is very important to an understanding of the possibility of an evolution of consciousness.

Sri Aurobindo happens to have undertaken a Yoga *sadhana*, which he documented incrementally for many years, in which he attempted to establish a permanent *trikaladrishti* – seeing in the three times – and *trikalatapas* - using energy to determine precisely the eventuality on the basis of the actuality and the potential. This apparently became his primary preoccupation for those years of *sadhana* between about 1910 and 1925 – to master the siddhi of *trikaladrishti* – which was something he felt to be the key to the transformation of consciousness, this evolutionary spirituality that he taught. It is an evolutionary spirituality, and there are parameters that have been defined very precisely for enacting and realizing this aim.

What unites these thinkers from Aristotle to Bergson and the others, can be called intuitionism. And what I have tried to define and point out in these lectures is the difference between rational, analytical thinking and intuitional thinking. Intuition, as defined by Bergson and subsequently by Sri Aurobindo, is a potential of mind that is engaged creatively in the actual duration and intensity of the creative unfolding of existence, whereas the analytical mind is engaged in tying down segments of that unfolding in a kind of spatial relationship in order to measure changes and define changes and apply that understanding to other practical arrangements. And that way of thinking has contributed substantially to the product of human society that we find today, which is so advanced and technologically efficient. However, all along the process of the development of the human being for the past few thousand years, the intuitional mind has also been developing and creating and having inspirations about the knowledge that has later been measured, so they work together. But the idea of evolving beyond mind often amounts to evolving beyond the limitations of the rational mind. And the way it is done is by putting the intuitional mind in front, and by allowing it to become dominant, which hasn't happened in an appreciable way on a level of normative behavior. For the intuitive mind to be maximized and to become dominant in the life of the human being is the pathway defined by Bergson and Sri Aurobindo towards supermind. Intuitive mind is an intermediate between rational mind and supermind and this

has been defined very specifically by Sri Aurobindo. All of the techniques of Yoga he has taught are about accessing that pathway.

I would like to proceed with Whitehead in order to give us a sense of what it means to allow this intuitive mind to grasp reality in a very conscious and deliberate way, and to see what the product is.

I believe this is a very early experimental stage in this evolution and yet Whitehead had achieved so much from the point of view of the rational mind, that for him to move in this intuitive direction meant that he was bringing to it equipment that was already quite extraordinarily developed, as did Heidegger and Sri Aurobindo, no doubt. So how does it look for this highly developed rational mind to launch fully and completely into the intuitive stream of mind, and how does it look for it to try to grasp, in terms that we can more or less understand, reality from that perspective. I think we can get some indications of that. But we have to be willing to admit that the rational mind can make this transition and that it is not a matter of this or that, it is really a transition that we are asked to make. It is not possible – I will commit to this point of view – it is not possible for the rational mind to leap into the supermind without a transitional stage of development. If it were possible, we would have already done that.

These ideas of Whitehead are examples of the fundamental Platonic/Aristotelian way of thinking and we will recognize it because it is the way we think; it is the way the mind works. I'll just read a few segments from Whitehead and we will reflect on what he is saying. "Creativity, Many, One, are the ultimate notions involved in the meaning of the synonymous terms 'thing', 'being', 'entity'."¹⁷⁴ Last week we spoke about identity and difference. We know things by their identity with themselves and their difference from everything else. That is how the mind works. But it is not only how the mind works; it is also how nature works. Everything is identical with itself and different from every other thing.

¹⁷⁴ Alfred North Whitehead, *Process and Reality* (1929/1978), p. 21

And then there are categories to which we assign certain identities, and within the species we are different from everyone else, and we are all different with respect to another species. That is not just a way of thinking: that is how nature works. Whitehead begins by pointing this out. "The term 'many' presupposes the term 'one' and the term 'one' presupposes the term 'many'. The term 'many' conveys the notion of disjunctive diversity; this notion is an essential element in the concept of 'being'. There are many 'beings' in disjunctive diversity." Thanks to our logic class we now know the meaning of disjunction. Disjunctive diversity means either this or that; if this then not that, and if that then not this. This allows everything to be what it is. But a 'something else' can be with it on the basis of difference. This and that.

In the philosophy of difference – Derrida and Deleuze, and company – there has been a vast amount of thinking along these lines, which has the aim of training the mind to understand every incremental difference in being and thinking on the basis of oneness, or the Same.¹⁷⁵ To do that means to move into what Sri Aurobindo calls the universalization of consciousness. He says it is absolutely essential for Yoga for the mind to universalize itself and stop thinking in terms of me and mine, because we are all that, and we have the same feelings and relations, and throughout the world the human species is engaged in manifesting universals: teaching and learning, healing, enjoying, structuring, evaluating, reproducing, protecting, securing – all the behaviors of the human being are universal. Therefore we can dissociate ourselves from a limited time frame and ego frame by making the Self transparent to being as such, and being as such is all of that diversity that manifests those universals. And only then, says Sri Aurobindo as we shall see, is it possible to undertake the Yoga of transformation.

Whitehead then says, "Creativity is the universal of universals..." Every moment is new, it is novel. This moment, in this context, however much

¹⁷⁵ Jaques Derrida has followed Heidegger and Gilles Deleuze has followed Bergson, and they have carried this thinking of 'being' forward in amazingly creative and diverse ways in the second half of the 20th Century.

we might have planned it beforehand, is nevertheless not what we have planned; it is now something unique. We are often so stuck in the value we give to our plans and their realization, in spite of every obstacle, that we can fail to appreciate the moment which is nonetheless unique. Individuals who come together at this point because of Auroville, because of the Yoga of Sri Aurobindo, because of this attempt to understand the philosophy of evolution, this whole flow of reality comes constantly to new expressions of a vast energy of truth that is manifesting in a false framework of time and space. We want to understand the relationship between that luminous true energy and this false, temporary confused conglomerate of lives. So we have a purpose, and Aristotle says nature does nothing without a purpose. But we have these confused ideas that we've learned from science about how everything happens by chance, nothing happens for a purpose, it is all random. It is like science tells us that we receive all of these stimuli and convert them into images in our mind, and then all we know are the images in our mind. But we know that isn't true. We know what is there in front of us. We know it directly and it is what it is. All of these energies go through our manifold organic apparatus of consciousness that has been structured by evolution so that we can know what is there in front of us, not what we are constructing in the mind. We are talking here about a long history of philosophy called intuitionism that has known this, but it has been significantly overridden by another kind of philosophy that wants to negate that reality and concern itself only with the interpretations of the rational mind.

So Whitehead says, "An actual occasion is a novel entity diverse from any entity in the 'many' which it unifies. Thus 'creativity' introduces novelty into the content of the many, which are the universe disjunctively. The 'creative advance' is the application of this ultimate principle of creativity to each novel situation which it originates."¹⁷⁶ So it is this or that, it is you or her, it is me now or me then, those are all disjunctions of things that are, but actually right now it is you and me and her and this moment, and the disjunctive diversity has become a

¹⁷⁶Op. cit., p. 21

conjunctive unity. This creative advance is going on in your cells and molecules and life and relationships with others all the time. So there are these actualities that are the product of many other actualities that continually become novel entities.

“The ultimate metaphysical principle is the advance from disjunction to conjunction, creating a novel entity other than the entities given in disjunction. The novel entity is at once the togetherness of the ‘many’ which it finds, and also it is one among the disjunctive many which it leaves; it is a novel entity, disjunctively among the many entities which it synthesizes. The many become one, and are increased by one. In their natures, entities are disjunctively many in process of passage into conjunctive unity.” Whitehead calls this the vector character of reality. We were able to see some value in coming here this morning, intuitively, and so we moved throughout the week toward this unity, and toward other unities. This is creativity. We are something new and other than the many that we are; every actual entity is more than the many which make it up, and that movement is going on continuously; there hasn’t been a break in three billion years. But there are lapses leaps, and speciation occurs. Societies and cultures come and go. Aristotle was looking at the ideal Greek society of Athens and two hundred years later there was nothing left of it. And there have been moments of rebirth and synthesis that have produced especially divine products. The 15th Century was like that, after Aristotle was rediscovered in the 13th, and the cathedrals became universities and gave birth to the age of science.

There is something about that process that is fundamental, which Whitehead has stated here in terms of axioms that he calls Categories of Explanation. “1. That the actual world is a process, and that the process is the becoming of actual entities. Thus actual entities are creatures; they are also termed ‘actual occasions’. 2. That in the becoming of an actual entity, the potential unity of many entities in disjunctive diversity acquires the real unity of the one actual entity; so that the actual entity is the real concrescence of many potentials.” Concrescence means to be

concrete and real. We can think about this in terms of the life and health of the body, or the economy of the society. It was a good idea to have a course in the philosophy of evolution, but that was only a potential; this is the actual, concrete, vibrant entity, a creature. Concrecence is the coming together of potentials in an actual unity. "3. That an eternal object can be described only in terms of its potentiality for ingression into the becoming of actual entities. 4. That the fundamental types of entities are actual entities and eternal objects; and that the other types of entities only express how all entities of the two fundamental types are in community with each other, in the actual world."¹⁷⁷

Each of these actual entities embodies a quality: a quality of beauty, a quality of truth, or their opposites, a quality of power, of meaning, of heat or cold. None of these actual entities, which we are, is just a conglomerate of carbon, hydrogen, oxygen and nitrogen. Each one is the accumulation of meaning and purpose that is our life, and this gathering is a concrecence of the meaning and purpose of human unity in Auroville, to explore the philosophy of evolution. "An eternal object", by which he means a "universal" – because the idea of 'one' and 'many', is just an idea. Right? There is no 'one', there is no 'many', as such. These are just concepts. There is no beauty, apart from the essence of beauty. Truth and goodness and meaning and purpose are only concepts, apart from their manifestation in a group of actual entities. They only exist by virtue of the process of becoming in time and space. But there they exist in partial temporary forms. We understand that great manifestations of truth and art and poetry and beauty occur throughout the ages, they are eternal objects, but they are not known apart from the manifestations in which they occur. This is the fundamental Platonic/Aristotelian concept. There is an ingression, an entry into matter, life, and mind, of a principle like truth and beauty and consciousness and meaning and caring and creativity that participate in matter, life and mind, that otherwise are just conglomerates of molecules and drives and mechanical energies that we are processing on the material level. This is all the result of an ingression of meaning

¹⁷⁷ Ibid., p. 22

and purpose, of form, that derives from a plane of eternal objects, truths, known in Greek as the *ideai*, ideas. Sri Aurobindo calls them Real Ideas.

Before going into Sri Aurobindo, I would like to jump from Whitehead's axiomatic view to some things he says that are more discursive and of a more cosmological nature. While Whitehead's philosophy is far too complex to explore in detail here, we may get a glimpse of the effort that he makes to grasp intuitively, and as a whole, the creative movement of time, and thereby to synthesize the opposites and dualities that are implied. And this seems to be one of the major characteristics of the transition in consciousness that is being proposed by these philosophers of evolution. He says, for example, "The universe includes a threefold creative act, composed of (i) the one infinite conceptual realization (which Aristotle has characterized as a Mind that is "a sort of positive state like light", that is the origin of all things, and without which "nothing thinks"), (ii) the multiple solidarity of free physical realizations in the temporal world (which we may understand to be the evolutionary world of continuous change), (iii) and the ultimate unity of the multiplicity of actual fact with the primordial conceptual fact (which seems to be the synthesis of permanence and change and to constitute the meaning, quality, value of everything that exists). If we conceive the first term and the last term in their unity, over against the intermediate multiple freedom of physical realizations in the temporal world, we conceive of the patience of God, tenderly saving the turmoil of the intermediate world by the completion of his own nature. ...he is the poet of the world, with tender patience leading it by his vision of truth, beauty, and goodness."¹⁷⁸ Infinite potential exists in the universe between the absolute, or primordial conceptual fact, and the concrescent combination or synthesis of the opposite poles, which gives it the actual, meaningful forms and processes in time. Each concrescence is a conjunction between the supermind and matter. In every individual soul there is such a concrescence, in every actual entity which is a society of many there is a concrescence of the infinite and

¹⁷⁸ Ibid., p. 346

eternal. That infinite and eternal is not apart from this process. This process embodies it to some extent at each moment, otherwise it would have no shape, or limit, or quality. "The sheer force of things lies in the intermediate physical process", says Whitehead. But these two poles give that energy direction. So there is homeostatic development with constraints, always maintaining continuity, in the field of constant novelty. This is pure evolutionary thinking in Aristotelian terms stated by a 20th Century mathematician.

Sri Aurobindo also moves constantly between these levels in his philosophy of evolution. There is the plane of the Absolute, which contains all powers and all delights and all truths eternally. And then there is the physical, vital, mental field of becoming, the plane of cause and effect relations, pain and pleasure, creation and destruction, infinite potential. And in this hierarchy, the "between" is the planes of spiritual mind, with the Mahashakti at the top, who knows the truth, beauty and goodness in the eternal forms and consciously mediates their embodiments in the becoming. She saves all by her boundless grace. In both of these cosmological conceptions, there is a power of vision, an intuitive direct grasp of the totality and dynamism of the interaction of these three levels of being and consciousness, and it is this that seems to be the source of the inspiration for an evolutionary progression beyond the lower planes of mind. And for each of these philosophers of a higher intuition, the key seems to be a certain transcendent grasp of time. Both Whitehead and Sri Aurobindo have attempted to frame this intuition in a variety of similar ways, as we shall see.

For example, to conclude this brief review of Whitehead, and perhaps to try to grasp more firmly this dimension of the problem, let us read this argument that comes near the end of his book:

"The vicious separation of the flux from the permanence leads to the concept of an entirely static God, with eminent reality, in relation to an entirely fluent world, with deficient reality. But if the opposites, static and fluent, have once been so explained as separately to

characterize diverse actualities, the interplay between the thing which is static and the things which are fluent involves contradiction at every step in its explanation. ...intuition has always, though obscurely grasped the problem as double and not as single. There is not the mere problem of fluency and permanence. There is the double problem : actuality with permanence, requiring fluency as its completion, and actuality with fluency, requiring permanence as its completion. ...The problems of the fluency of God and of the everlastingness of passing experience are solved by the same factor in the universe. This factor is the temporal world perfected by its reception and its reformation, as a fulfillment of the primordial appetite (will-force) which is the basis of all order. In this way, God is completed by the individual, fluent satisfaction of finite fact, and the temporal occasions are completed by their everlasting union with their transformed selves, purged into conformation with the eternal order which is the final absolute 'wisdom'."179

Well, as he said early-on in his treatise, "These ultimate notions of 'production of novelty' and of 'concrete togetherness' are inexplicable in terms of higher universals or in terms of components participating in the concrescence. The analysis of the components abstracts from the concrescence. The sole appeal is to intuition."180

In this evolving physical, vital, mental field, forms have evolved from the micro-organism to the biosphere, to the fully creative human soul, which now feels the constraints of the biosphere quite acutely, and asks itself whether a further ingression can take place between this evolutionary status and that infinite potential which can give us a leverage in the biosphere to manifest a quality of consciousness that is more caring, more transparent, more universal, more effective, for – not only survival – but a further manifestation of that potential which is eternal. The human being asks this question. And in order to ask this

¹⁷⁹ Ibid., p. 347

¹⁸⁰ Ibid., p. 21

question it has to have a fundamental intuitive perception of the relationship between the infinite potential and the absolute essence. Otherwise it would never ask this question. (Perhaps that infinite patience of God would be an answer?)

So, to pursue a more direct access to this intuitive and evolutionary understanding, we may follow-up with the thinking of Sri Aurobindo. In *The Life Divine*, he says, "There is a constant mental, vital, subtle physical interchange going on between all who meet or live together of which they themselves are unaware except in so far as its impacts and interpenetrations touch them as sensible results of speech and action and other contact. For the most part it is subtly and invisibly that this interchange takes place, for it acts indirectly touching the subliminal parts and through them the outer nature." By subliminal parts he means "the mixed capacity of the inner mental and vital nature", and "deeper behind it a psychic entity which supports our individual life and body. ...There is indeed a soul personality representative of this entity. ... when we get into our subliminal consciousness, we find it extending itself to be commensurate with its world; when we get into our superconscient Self, we find that the world is only its manifestation and that all in it is the One..."¹⁸¹ So the subliminal being is the psychic purusha and the higher spiritual Self; the *caitya purusha* and the *caitanya purusha*, this all-knowing self in the human can connect with that all-knowing Self of the cosmos, and experience all of these planes in their interconnections. But in order to do that, this psychic being has to step back from its involvement in momentary impressions and conceptions and allow itself to identify with the totality.

Now, what Sri Aurobindo does to put this Hindu conception into the context of Platonic/Aristotelian metaphysical thinking is this. He says,

"Oneness or sameness is everywhere, differentiation is everywhere; the indwelling Reality has built the universe on the principle of the development of one seed into a million different fashions. But this

¹⁸¹ Sri Aurobindo, *The Life Divine* (1970 ed.) p. 563

again is the logic of the Infinite; because the essence of the Reality is immutably the same, it can assume securely these innumerable differences of form and character and movement, for even if they were multiplied a trillionfold, that would not affect the underlying immutability of the eternal Identical. Because the Self and Spirit in things and beings is one everywhere, therefore Nature can afford this luxury of infinite differentiation..."¹⁸²

"In our experience of it we become aware of an Infinite essentially free from all limitation by qualities, properties, features; on the other hand, we are aware of an Infinite teeming with innumerable qualities, properties, features..."¹⁸³

These are what Whitehead refers to as eternal objects. Qualities, properties, and features exist in innumerable forms of expression, but in themselves they are eternal in the Reality which is infinite and always the same, but that sameness contains every possible quality. It is the Absolute, Infinite, and the Real, as Sri Aurobindo puts it, and all of its temporal formations are it also. He says:

"A quality is the character of a power of conscious being; or we may say that the consciousness of being expressing what is in it makes the power it brings out recognisable by a native stamp on it which we call quality or character. Courage as a quality is such a power of being, it is a certain character of my consciousness expressing a formulated force of my being, bringing out or creating a definite kind of force of my nature in action. So too the power of a drug to cure is its property, a special force of being, native to the herb or mineral from which it is produced, and this speciality is determined by the Real-Idea concealed in the involved consciousness which dwells in the plant or mineral; the idea brings out in it what was there at the root of its manifestation and has now come out thus empowered as the force of its being. All qualities, properties,

¹⁸² Ibid., p. 340

¹⁸³ Ibid., p. 334

features are such powers of conscious being thus put forth from itself by the Absolute..."¹⁸⁴

I call this "extreme subjectivism". Sri Aurobindo's philosophy of intuition is a form of extreme subjectivism in which everything that exists objectively is an expression of the self for the self, it is an identity of the self which it can experience as itself among its infinite other expressions of itself. This is the dynamic creative power of the infinite and eternal Self in time and space.

So, if you are a risk taker, and you really do it, this is an expression of the infinite in you. We have the capacity to express what it means to really be somebody. If we don't take risks in this world, we are hardly human. The Real Idea is a force of eternal being that expresses itself in these momentary evolutionary forms. Nothing is not that. Nothing is just matter or just life. Everything in nature has a purpose because of the plane of the Real Idea which is the plane in which all of this comes and goes.

If we are that Absolute then we must be able to know it and to express it, and that is what the evolution of supermind is about. That is its principle. It is basic Sankhya philosophy and it is basic Platonism. As Aristotle said in *De Anima*, the locomotive soul, the nutritive soul, the intellective soul are forms of the supreme Mind, the unmoved mover, which is an eternal light that holds in it, actually, everything that can be known in the temporal world. It is only possible for something to be known in the temporal world because of that which is not in the temporal world. And that Mind is also the essence of the things themselves. Otherwise there would be no knowing, he said. If that supermind were not in this soul, then everything would just be matter and mechanical force. But it is a world of quality and consciousness; cognition is omnipresent, because there is a self in it that is One.

"We see that the Absolute, the Self, the Divine, the Spirit, the Being is

¹⁸⁴ Ibid

One; the Transcendental is one, the Cosmic is one: but we see also that beings are many and each has a self, a spirit, a like yet different nature. And since the spirit and essence of things is one, we are obliged to admit that all these many must be that One, and it follows that the One is or has become many; but how can the limited or relative be the Absolute and how can man or beast or bird be the Divine Being? But in erecting this apparent contradiction the mind makes a double error. It is thinking in the terms of the mathematical finite unit which is sole in limitation, the one which is less than two and can become two only by division and fragmentation or by addition and multiplication; but this is an infinite Oneness, it is the essential and infinite Oneness which can contain the hundred and the thousand and the million and billion and trillion."¹⁸⁵

Well this is what Bergson said, as well, but not in such a dynamic, mantric form. When we think in terms of spatial differences, and the contradiction that is implied between the One and the Many, the Infinite and the finite, we are thinking analytically, within mathematical limits, and not grasping things totally in the stream of creativity. But no contradiction is implied except in this way of thinking. It, the Self, the One, can contain and express all of this and still be only Itself. Some Neo-Platonists call this experience the radiance of Being, which is a potential of human consciousness.

I will do the second version of this theme next week, with references to Plato, Heidegger and Sri Aurobindo.

¹⁸⁵ Ibid., p. 335

Lecture 10

Platonic/Aristotelian thinking in the philosophy of evolution

Today I am going to refer to some text of Sri Aurobindo that follows up from last week. And then I am going to refer to some text from three philosophers: Bateson, Dennett, and Heidegger, in order to conclude this course on Mind and Supermind. But first I want to share with you a general conclusion that I have reached, which is a kind of revelation for me. From time to time throughout this study, first in the series 'Darwin and Sri Aurobindo' (2008), and then in the first series on 'Mind and Supermind' (2009), and finally in this six-week series of lectures on 'Mind and Supermind' (2012), a pattern can be seen that I have just become aware of. It was not an intention from the beginning. When I began the course I did not have this in mind at all, and I have proceeded more or less inductively, until finally this realization has presented itself very strikingly.

As I pointed out last week, in the context of our review of the philosophy of Whitehead, Platonic and Aristotelian thought seems to be a characteristic of many of the philosophers we have considered, and especially of the intuitive stream, represented by Bergson, Whitehead, Heidegger, and Sri Aurobindo. Whitehead's restatement of this way of thinking in *Process and Reality* (1929/1978), is perhaps the most perfect expression of it to have been written in the history of philosophy. But even if we go back to Darwin, we can see the pattern of thinking that I am speaking about. For example, in the last pages of *The Origin of Species*, he wrote:

"When I view all things not as special creations, but as the lineal descendants of some few beings which lived long before the first bed of the Cambrian system was deposited, they seem to me to be ennobled. Judging from the past, we may safely infer that not one living species will transmit its unaltered likeness to a distant futurity. And of the species now living very few will transmit progeny of any

kind to a far distant futurity; for the manner in which organic beings are grouped shows that the greater number of species in each genus, and all the species in many genera, have left no descendants, but have become utterly extinct. We can so far take a prophetic glance into futurity as to foretell that it will be the common and widely-spread species, belonging to the larger and dominant groups within each class, which will ultimately prevail and procreate new and dominant species. As all the living forms of life are the lineal descendants of those which lived long before the Cambrian epoch, we may feel certain that the ordinary succession by generation has never once been broken, and that no cataclysm has desolated the whole world. Hence we may look with some confidence to a secure future of great length. And as natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress toward perfection."¹⁸⁶

Darwin's intuition was that nature is a continuum and that it moves toward an end or Final Cause – the good of all beings. That is what I am calling the fundamental characteristic of Aristotelian thought. And for philosophy, this implies a direct connection between Spirit and Matter, an intercession of Spirit, or Mind, or Form, into the material plane as the cause of this continuity of structures and forms which exist for a purpose. For, as Aristotle said, everything in Nature is for a purpose; that is in fact his definition of Nature. And it therefore becomes necessary for philosophy to explain this connection: how is it that Spirit intervenes in Matter to produce life? This intuition, and this question, have inspired philosophy for more than 2000 years, - it is an exciting discovery! And we find it also in the Vedic conception of Purusha and Prakriti. It is a Necessary Connection, not only for philosophy, but for the existence of evolutionary Life, and for the emergence of Mind. This was also Locke's fundamental argument in 1690 – that life and mind could not have emerged from unconscious matter, and Sri Aurobindo restated this argument almost verbatim in *The Life Divine*. And he had the knowledge and capacity to bring the classical Western and Indic conceptions

¹⁸⁶ Charles Darwin, *The Origin of Species* (6th ed., 1872), p. 314

together on precisely this point. It is this fundamental intuition of Spirit in Matter, of a kind of indeterminate origin of all Being which is, at the same time, an unlimited potential of all Becoming, which resides in the physical world and has to be explained. It has not only inspired philosophers for millennia, but evolutionary thought in the modern period from Spenser and Darwin to Bergson and Whitehead, and it is creative; it is a thought process that links itself with creativity, and with the impulse of evolution itself. How else could Sri Aurobindo have been inspired to write so many pages, or Heidegger, or Bergson, to give so many lectures, over a period of fifty years, which became the books of philosophy that have been perhaps more influential than any others in the 20th Century?

So, let us look now at a specific formulation of this essential Platonic/Aristotelian way of thinking as expressed by Sri Aurobindo. As we heard last time, according to Sri Aurobindo all qualities are the expression of Real-Ideas. But he then goes on to say something that is specifically relevant to the evolutionary transition from Mind to Supermind, and it is especially important for us to know. He said, "All qualities, properties, features are such powers of conscious being put forth from itself by the Absolute, ...", and then, like Whitehead, he proceeds to describe the relationship between the One and the Many, and how the infinite and absolute Reality is involved in and expresses itself through finite forms and processes, another restatement of the fundamental concepts of classical Greek philosophy, with which Sri Aurobindo was as familiar as he was with Vedic concepts.

"It can be said of it that it would not be the infinite Oneness if it were not capable of an infinite multiplicity; but that does not mean that the One is plural or can be limited or described as the sum of the Many: on the contrary, it can be the infinite Many because it exceeds all limitation or description by multiplicity and exceeds at the same time all limitation by finite conceptual oneness. ...it is the One Soul that dwells as the individual in these many souls and they are eternal in the One and by the one Eternal. This is difficult for the

mental reason which makes an opposition between the Infinite and the finite and associates finiteness with plurality and infinity with oneness; but in the logic of the Infinite there is no such opposition and the eternity of the Many in the One is a thing that is perfectly natural and possible."¹⁸⁷

And then Sri Aurobindo introduces the problem of motion and immobility as states of the Infinite in its expression of qualities, and we begin to understand the relationship between this metaphysical explanation of reality and the psychological process of an evolutionary spirituality.

"Again, we see that there is an infinite pure status and immobile silence of the Spirit; we see too that there is a boundless movement of the Spirit, a power, a dynamic spiritual all-containing self-extension of the Infinite. Our conceptions foist upon this perception, in itself valid and accurate, an opposition between the silence and status and the dynamis and movement, but to the reason and the logic of the Infinite there can be no such opposition. A solely silent and static Infinite, an Infinite without an infinite power and dynamis and energy is inadmissible except as the perception of an aspect; a powerless Absolute, an impotent Spirit is unthinkable: an infinite energy must be the dynamis of the Infinite, an all-power must be the potency of the Absolute, an illimitable force must be the force of the Spirit. But the silence, the status are the basis of the movement, an eternal immobility is the necessary condition, field, essence even, of the infinite mobility, a stable being is the condition and foundation of the vast action of the Force of being. It is when we arrive at something of this silence, stability, immobility that we can base on it a force and energy which in our superficial restless state would be inconceivable. The opposition we make is mental and conceptual; in reality, the silence of the Spirit and the dynamis of the Spirit are complementary truths and inseparable."¹⁸⁸

¹⁸⁷Sri Aurobindo, *The Life Divine* (1970 ed.), p. 336

And here we begin to see the basis of the Vedic and Vedantic concepts of Purusha and Prakiti, and the foundation of both Hindu and Buddhist yoga practices for the transformation of consciousness: we have to enter into the silence of the One in order to know the Many as its expression.

“Our conception of the Infinite is formlessness, but everywhere we see form and forms surrounding us and it can be and is affirmed of the Divine Being that he is at once Form and the Formless. ...The formlessness is the character of the spiritual essence, the spirit-substance of the Reality; all finite realities are powers, forms, self-shapings of that substance: the Divine is formless and nameless, but by that very reason capable of manifesting all possible names and shapes of being. Forms are manifestations, not arbitrary inventions out of nothing; for line and colour, mass and design which are the essentials of form carry always in them a significance, are, it might be said, secret values and significances of an unseen reality made visible...”¹⁸⁹

And it is with this understanding that we find the key to the movement from Mind to Supermind and the possibility of an intuitive, direct grasp of the Identity of each and every difference in the unity of the Self. But in order to experience that Identity, the mind must become silent. This requirement, and the method of achieving it, are made very explicit by Sri Aurobindo in *The Synthesis of Yoga*.

“Obeying the necessity to withdraw successively from the practical egoism of our triple nature and its fundamental ego-sense, we come to the realisation of the spirit, the self, lord of this individual human manifestation, but our knowledge is not integral if we do not make this self in the individual one with the cosmic spirit and find their greater reality above in an inexpressible but not unknowable Transcendence. The Jiva, possessed of himself, must give himself up

¹⁸⁸ Ibid., p. 336

¹⁸⁹ Ibid., p. 337

into the being of the Divine. The self of the man must be made one with the Self of all; the self of the finite individual must pour itself into the boundless finite and that cosmic spirit too must be exceeded in the transcendent Infinite.

“This cannot be done without an uncompromising abolition of the ego-sense at its very basis and source. In the path of Knowledge one attempts this abolition, negatively by a denial of the reality of the ego, positively by a constant fixing of the thought upon the idea of the One and the Infinite in itself or the One and Infinite everywhere. This, if persistently done, changes in the end the mental outlook on oneself and the whole world and there is a kind of mental realisation; but afterwards by degrees or perhaps rapidly and imperatively and almost at the beginning the mental realisation deepens into spiritual experience— a realisation in the very substance of our being. More and more frequent conditions come of something indefinable and illimitable, a peace, a silence, a joy, a bliss beyond expression, a sense of absolute impersonal Power, a pure existence, a pure consciousness, an all-pervading Presence. The ego persists in itself or in its habitual movements, but the place of the one becomes more and more loosened, the others are broken, crushed, more and more rejected, becoming weak in their intensity, limp or mechanical in their action. In the end there is a constant giving up of the whole consciousness into the being of the Supreme. In the beginning when the restless confusion and obscuring impurity of our outward nature is active, when the mental, vital, physical ego-sense are still powerful, this new mental outlook, these experiences may be found difficult in the extreme: but once that triple egoism is discouraged or moribund and the instruments of the Spirit are set right and purified, in an entirely pure, silent, clarified, widened consciousness the purity, infinity, stillness of the One reflects itself like the sky in a limpid lake.”¹⁹⁰

Now, we should not think for a minute that this can be done easily. It is

¹⁹⁰Sri Aurobindo, *The Synthesis of Yoga* (1970 ed.), p.347/348

an evolutionary phenomenon that he is suggesting: to abolish the sense that we are separate, and to live in the sense of our oneness with every other expression of the infinite, to perceive it. Previously we read something from Sri Aurobindo where he said it is absolutely necessary to universalize the self in the body, the self in the vital, the self in the mind, the self in the spirit; all those levels of the soul must experience themselves as the universal physical, vital, mental and spiritual being, as a constant living perception; not a concept of metaphysics. And the method that is being suggested is no different from the practice of Tibetan Buddhism which requires that we impose on ourselves, through the *buddhi*, the perception of the emptiness of everything, and in that emptiness we can impose a value of compassion. When we have succeeded in the practice we have wisdom, called *bodhichitta*. (Of course the secret of this emptiness is that it is a total, impersonal fullness.)

So much of what Sri Aurobindo says is about this movement which enables the divine force of the infinite to work through the human instrument in a transparent and creative way. And that is the evolutionary movement from rational mind to supermind that Sri Aurobindo prescribes. Unlike Whitehead, Bergson and Heidegger who did not prescribe, Sri Aurobindo states the same philosophy but prescribes a Yoga for achieving a state which those philosophers perhaps achieved in a similar way in their own lives, but they were not Yoga gurus. The perception that Sri Aurobindo began this passage with, is that to perceive in that stillness the essence of things is to perceive the qualities of the infinite. It is not to perceive things through our conditioned mental screen. This is a transformation of consciousness. As he said, "a quality is a character of conscious Being... all qualities are powers of conscious being put forth by the Absolute". That is a perception, and it is not the one we are accustomed to experiencing by our conditioned analytical minds and preferential vitals and general self interest. We don't tend to experience things as differences of the One; we usually experience things as just different from each other, and often inapproachably different.

So this transformation of consciousness is something that Plato also spoke about long ago. And I will just read some text of Heidegger to reinforce this idea. He did a very good job in a book titled *The Essence of Truth* (1931)¹⁹¹, which is fundamentally a restatement of Plato's philosophy in *The Republic*, which also contains Heidegger's translation of the original with an extensive commentary in which it is often difficult to distinguish the difference between Heidegger and Plato. But in dealing with a subject called *idea tou agathou*, the idea of the good, he says "The ability to see and the ability to be seen must both be harnessed together in one yoke." Now the idea of the good is something we are very familiar with. We are always entertaining our ideas of the good, and labeling some things as participating in that idea, and some other things as not participating in that idea. So this is not an uncommon activity. But what we don't generally perceive is that the idea of the good is not just our judgment about things. It really is what makes things good, and it really comes from the supreme goodness. Things which don't measure up are just in a partial evolutionary condition.

At any rate, Plato says, "The ability to see and the ability to be seen must both be harnessed together under one yoke." Now what is consciousness? It is the seeing of the seen. But what is the relationship between those two. It's perception. But how is it that perception perceives what it perceives? This is the big mystery for philosophy ever since Plato, but he has dealt with the mystery quite adequately, as have others. "A yoke which gives the *dunamis* to the perceiving as also to the perceivable." The energy of the perceived and the energy of perceiving are somehow yoked. "And what must pertain to the perceived in order that it should be perceivable? The *aletheia*." *Aletheia* means the revealing or un-hiding of the truth, the inherent nature of the thing –

¹⁹¹ Martin Heidegger, *The Essence of Truth* (1988/2002), a lecture course given in 1931, first published in German in 1988, English translation by Ted Sadler published in 2002. I have selected passages primarily from Part One, Ch. 2, The Idea of the Good and Unhiddenness, and from Part Two, Ch. 2, Section 24, The Soul as the Relationship that Unifies the Perceivable.

swabhava in Sanskrit. The nature of the thing itself becomes unhidden in the perceiving of it. "Plato says that a being is only accessible as such when it stands in *aletheia*, unhiddenness. In a way, that is self-evident for a Greek. He unambiguously understands *aletheia*, not as a property and determination of seeing, of knowledge, nor as a characteristic of knowledge in the sense of a human faculty, but as a determination of what is known, of the things themselves, of the beings. This therefore, says Plato, which grants unhiddenness to the knowable beings, and which lends to the knower the power of knowing, this I say is the idea of the good."

If things were not knowable and known, there would be no consciousness, and there would be no process of learning, which as we have seen is going on at every level of life, throughout evolution, because of this yoking together of the known and the knowing; it is a fundamental phenomenon of conscious perception, called cognition. But how is it so? It is so because of the idea of the good; in Sri Aurobindo it is known as the Supermind, the *chit-shakti*, the force of consciousness that manifests in the thing and in the knowing of the thing: what it is. Not just what we think it is.

"The good, the *agathon*, is therefore the enablement of being as such, and of the unhiddenness of being as such. Or better, what Plato calls the good is that which empowers being and unhiddenness to their own essence." Knowing has an essence, called mind by Aristotle, and manifesting a quality of being has an essence which may be a physical thing or a dynamic process or a pattern in society; there is an essence which is known. And here we transition from Plato into Aristotle. And we see that the purpose of things, the form of things, is their essence and that is what is known. Mind is the principle of difference. It is a fundamental quality of the being of things, which is their identity and difference. And everything is relational. Mind in things is identity and difference, and mind in knowing is the recognition of the identities and differences in things. This is a fundamental Platonic, Aristotelian, Aurobindonian, Vedic perception. And when you have that perception it

is exciting. It makes philosophy something much more than what we usually think philosophy is. It is an iterating of a perception that is itself the embodiment of what things are. So Heidegger says that the preoccupation of philosophy is with what is, not how we know what is. The *noein*, the *gnoston*, the gnostic identity, is really what philosophy is after.

So then Heidegger says, "What is prior to everything else, that upon which everything depends, the *agathon*, can only be understood in this sense: the empowerment of being." For Aristotle it was Mind. And that is the Good. It enables things to be what they are and also to be known. In Sanskrit this is called *chit-shakti*.

But, in evolutionary thinking we also find another school, the scientific school, and Gregory Bateson, whose father was a famous biologist, and who was a well-known anthropologist and psychologist in the 60s, published a book around 1970, titled *Steps Toward an Ecology of Mind*, and in 1979 another book titled *Mind and Nature*. On the surface of it you might think that this would be about Purusha and Prakriti, but unfortunately it isn't. Bateson was very much preoccupied with that other branch of philosophy known as epistemology. What we have been talking about today is ontology. But Bateson was not an ontologist, he never made that step, as Whitehead did. He remained a hard-nosed epistemologist till the end, and therefore he provides us with a good window on that school of thought. He writes here that, "The argument of this book presupposes that science is a way of perceiving, and making what we call "sense" of our percepts. But perception operates only on difference."¹⁹²

Well, this is not true. But it is true for scientific thinking, and it is a very profound statement. For throughout his book he is battling with how to make logical statements about our perceptions which are true. And yet he makes the statement, on the next page, "All experience is subjective. Our brains make the images that we think we perceive. It is significant

¹⁹²Gregory Bateson, *Mind and Nature* (1979), p. 29

that all conscious perception has image characteristics." He is saying that all conscious perception is representational. And he gives many examples. He says, "A pain is localized somewhere, it has a beginning and an end and stands out against a background. There are elementary components of an image. When someone steps on my toe what I experience is not his stepping on my toe but my image of his stepping on my toe reconstructed from neural reports reaching my brain somewhat after his foot has landed on mine." This is spatial thinking, as explained by Bergson. And for Bateson, even an image has components, and as such is not itself a whole thing or event.

In another book with a similar approach, titled *Consciousness Explained* (1991), the leading analytical philosopher of evolution, Daniel Dennett, has given many examples from innumerable laboratory attempts to define the differences between perceptions and the perceived, between stepping on the toe and perceiving stepping on the toe, in order to try to explain consciousness. He constructed or reported on many experiments in controlled conditions to demonstrate what happens to perceptions under different stimuli, and how to analyze the differences between perceptions under different stimuli, and the judgments to which they lead, which reduces everything to time measurements between a stimulus and a response. In the end, the book is a compilation of artificially created experiences and conditions, which are analyzed. And it is the analysis that becomes the event or focus on the basis of which Dennett hopes to arrive at an understanding and explanation of consciousness. He calls this metaphysical minimalism, and the content of his experiments "fictions". The hope is that the fictions will tell us something meaningful about reality. But it doesn't work. Consciousness happens in the context of real events, and it is unanalyzable as an artificial construct in a laboratory. But, moreover, to make that reduction is to invalidate and annul the field of consciousness itself, which as we have heard about from the philosophers of intuitive mind is something directly knowable and irreducible. There is a huge difference between these two kinds of philosophy.

One outstanding example of the difference is found in their respective understanding of subjectivity and objectivity. Bateson says, "Experience of the exterior is always mediated by particular sense organs and neural pathways. To that extent objects are my creation and my experience of them is subjective and not objective." I have tried to show many times that this is just a way of speaking and behaving that tries to establish the difference between subjectivity and objectivity analytically but it doesn't succeed. And Heidegger pointed out early on, in his first book – *Being and Time* (1927/1996) – how that doesn't work, and throughout fifty years of lecturing and writing he pointed this out again and again. Anyone who follows the thinking of Heidegger, Bergson and Sri Aurobindo understands that extreme subjectivity, as we have been considering it, is the ability of this organism to resonate in sympathy with another organism and with the cosmos as a whole, to the point where there is no line between subjectivity and objectivity. And that degree of subjectivity can be demonstrated objectively. It can be shared and understood commonly, *koina* in Greek. Perception comes from this ability of the soul, or the conscious being through its perceptive apparatus, to bring together the external and internal in one perception. And Plato has defined this very explicitly.

I will read Heidegger's version of that because this is fundamental philosophy. It has been with us throughout the history of philosophy. It is the understanding of how we know what we know. Heidegger says, "We perceive the existing objects of perception." He doesn't say we perceive a constructed image of the existing objects of perception. "Color and sound, color is one being, sound is another. Or, to put it another way, the one exists as something different in relation to the other. As beings, both color and sound are different to each other and the same as themselves." We have said this many times, identity and difference: everything is what it is and different from everything else. This is how the mind perceives, and it is also how things are. "We perceive all this being (being, being one, difference, both, the same, two, one, identity, non-identity) in addition to the color and sound themselves. So we have an irremovable excess (as we provisionally call

it) of perceivables within the region of perception, and it is incumbent on us to soberly re-inact the proof that Plato provides for this. We do not know what this excess is." We experience an excess of perceptions that are not in the colors and sounds themselves but that are somehow within or behind the perceptions of color and sound, which the mind adds. Plato says "Now in what way do you perceive all this (the indicated excess) attaching to them (color and sound)? For it is impossible, either through hearing or sight to discover or take in what they have in common." Sight doesn't perceive what it has in common with color, and it doesn't perceive what it has in common with sound. Nor do the senses perceive what their objects have in common. But we do.

"It is now said that this is *to koinon*," says Heidegger, "i.e. what color and sound have in common... color, sound, taste, etc, are all existing, each identical with itself and different from one another. Do we hear this being-different, do we see it with our eyes? Do we hear or see their existing? Of course we do not. Plato says, There is no special organ for this (for this excess, for something's existing apart from something else) as there are for the others (color, sound, smell), but the soul itself views, through itself, what all things have in common." Aristotle will say it's the soul in mind as opposed to the soul in the vital or the physical. It perceives what all things have in common, their existence, their similarities, their differences. "This singularity of being, which they have in common, does not contain anything of color and sound, neither anything of smell. Being-different is likewise a *koinon*. To be sure, difference separates one from the other (color from sound)! It is therefore definitely not something they have in common! Color and sound are different only in so far as they are held up together and compared. ...The connection between the excess of perception and the soul itself is thus understood in a properly positive sense; we understand why it must be the soul, and this alone, which perceives *ta koina*. Plato says, The soul perceives everything of this kind through itself. But what can through mean here, where no bodily organ, indeed no kind of organ whatever, can be meant? Perhaps a 'soul-organ' and 'forces'? Not at all! But does the soul itself possess a passage-way? It

does not have this, but rather is this itself, thus holding up the region of a unitary perceivability. Intrinsically and as such it extends over to the other which can be given to it. As that which intrinsically perceives, the soul is itself a being-extended-to, a passage-way, an extending over to.”

The soul is one in all, and yet different in all differences. Something has the power to be perceived, and something has the power to perceive it, and that power of perception and perceivability is the good, the self in all that expresses itself in each of the qualities that have being. The empowerment of being and unhidddenness, that Platonic idea, is the idea of the soul.

No amount of systematic analysis of stimulus and response is going to arrive at anything other than an analysis of certain quanta of stimulus and response. And science is not going to grasp the evolutionary movement, the creativity in nature, by conducting laboratory experiments with drosophila which can be manipulated to express different kinds of wings or with frogs that can be stimulated to express different organs and rates of reproduction. Nor is the measurement of the learning rates of dolphins under different reward schedules going to explain consciousness. Such controlled experiments, preferred by Bateson, and even more so the computer simulations preferred by Dennett, fit perfectly into that category of scientific behavior defined by Bergson as the spatialization of phenomena by the analytic mind, removed entirely from the actual duration of what is, and the on-going movement of consciousness and creative evolution. One orientation, the rational mind, is looking from without downward and backward, the other orientation, the intuitive mind, is looking from within, upward and forward.

But in his more recent book, titled *Freedom Evolves* (2003), which I think is much more interesting, a shift seems to have occurred in Dennett’s approach. Here he argues copiously against the idea of physical or genetic determinism in evolution, and in favor of the mind’s ability, even in animals, to make choices that are free from strict genetic or even

environmental determinism. As he puts it, "To say that if determinism is true your nature is fixed, is to say something false. Our natures aren't fixed because we have evolved to be entities designed to change their natures in response to interactions with the rest of the world. It is confusion between having a fixed nature and having a fixed future that mismotivates the anguish over determinism. ...From the timeless God's-eye perspective nothing ever changes – the whole history of the universe is laid out at once – and even an indeterministic universe is just a static branching tree of trajectories. From the engaged agent's perspective, things change over time, and agents change to meet those changes. But of course not all change is possible for us. There are things we can change and things we can't change..."¹⁹³

This way of thinking is much more intuitive, and Bergsonian, than we might have expected from this strong proponent of the analytical school, but his point of view is also an extension and completion of Bateson's preoccupation with the misapplication of logic in our failures to distinguish between different logical types. The logic of determinism has a field of applicability, and the logic of freedom and choice has another field of applicability, and they should not be confused. It is interesting to note, along these lines, that in this book Dennett recognizes the strong role of intellectual and moral choice at work in human evolution as opposed to the principles of genetic mutation and the struggle for survival on the vital plane that have been the stronger determinants of earlier stages of evolution. And he includes a leading exponent of Neo-Darwinian science in this outlook. He says, "It is culture that provides the fulcrum from which we can leverage ourselves into new territory. Culture provides the vantage point from which we can see how to change the trajectories into the future that have been laid down by the blind exploration of our genes. As Richard Dawkins has said, 'The important point is that there is no general reason for expecting genetic influences to be any more irreversible than environmental ones.' But in order to reverse any such influence, you have to be able to recognize and understand it. It is only we human

¹⁹³ Daniel Dennett, *Freedom Evolves* (2003), p. 93

beings who have the long-range knowledge capable of identifying and then avoiding the pitfalls on the paths projected by our foresightless genes."¹⁹⁴

In this book Dennett has also given a prominent place to the exploration of the theory of "memes" and the role they play in the cultural transmission of information parallel to the role of genes in transmitting genetic information. At this point in evolution, although they obey the laws of natural selection, they are more important than genes in determining the forms that our relatively sophisticated symbolic life will take in generations to come. We may recognize in this idea a weak form of Aristotelianism. For although Dennett is not advocating the assumption of the role of leadership by the intuitive mind, which is the position that we have taken, he is certainly aware that cultural forms, such as parliaments and prisons, or BMW and Mercedes Benz exercise a relatively strong behavioral determinism on various populations of human society and are likely to continue to do so for some time to come, as will laws, languages, and laptops. These are formal causes, in Aristotelian terms, whose power cannot be denied; it is often greater than material causes such as environmental constraints, and efficient causes such as the limited availability of cash. The more important question is, What final causes will these institutions and artifacts serve to enhance or inhibit? Some of the contenders are obviously health, happiness, and harmony, as well as artificial intelligence, technological dominance, and monotony.

Dennett has arrived at the point where he and Dawkins agree that now evolution takes place in the domain of cultural products. Some of those products constitute attractors that influence humanity to take certain pathways. Evolutionary spirituality and the development of a higher faculty of intuition are ideas and practices that constitute such attractors. This idea and way of thinking about the relationship of Spirit and Matter, essence and substance, Supermind and Mind, has persisted for two or three thousand years. And in the 20th Century it has come

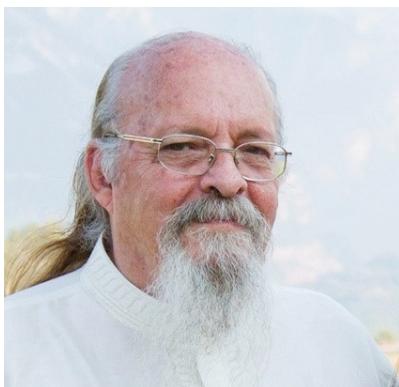
¹⁹⁴ Ibid., p. 165

more to the front as the products of rational thinking have become more destructive. At this point the survival of the human species seems to be threatened by the technological products of rational thinking, while the other stream of intuitional thinking seems to hold the promise of a more holistic and energetic treatment of life that could yield forms, now latent in the spirit of the infinite, that are sustainable, positive, luminous, divine. Certain exponents of this way of thinking have identified methodologies for enhancing the intuitive side of mind, over and above the enhancement of the rational, analytical side of mind. In addition to these thinkers, there are actually significant numbers of people all over the globe who are opting for more intuitional energetics in life and rejecting more and more consistently the analytical, technological patterns.

Auroville obviously represents an energy field where these two rub against each other in a particularly tangible manner. And as is true in all of evolution, as in most sports, there is no clear outcome until there is a clear outcome. And this is only a symbolic nexus of this process in the world today. There are many that are much harsher and less easy to sort out. But the significance of the philosophy of evolution is that it actually identifies these pathways and positively asserts the pathway of an intuitive human evolution that lies very concretely before us. And there are forces that are coming into play as a result of that idea. The descent of the divine Shakti is drawn into the emptiness and the stillness, and it works. It brings about that shift that Sri Aurobindo identified. These two poles of this evolutionary movement have been very well defined by Sri Aurobindo. They are poles that are being firmly grounded for this energetic transition between the divine Shakti and the still mind and vital, and the expanded universalized consciousness, that can be creative in the manifestation of those next forms. This philosophical creativity that we are engaged in now is itself part of that pathway. The sitting to bring about the stillness, and the deliberate invocation of the new consciousness, are firmly established techniques and pathways of an evolutionary spirituality which are in fact being energized by humanity today in many different ways. So ... that is the philosophy of

evolution in so far as the Mind and Supermind question can be addressed by me at this point. Thank you.

About the Author



Rod Hemsell: Lecturer

Educator and author Rod Hemsell lived in Auroville and the Sri Aurobindo Ashram from 1968-1983. He traveled extensively and spoke at centers and universities in India on Auroville and Sri Aurobindo's yoga philosophy, publishing a feature article on Auroville in the New Delhi Youth Times in 1974. He also published articles and essays in Mother India, World Union, and Auroville Review from 1970-1983.

In 1978, Rod presented Auroville along with Findhorn by Peter Caddy at the Festival for Mind, Body, and Spirit in London. Four years later, he gave a presentation on Savitri at Vishwabharati University in Santiniketan on the birthday of Rabindranath Tagore.

Rod was a guest speaker on Auroville at AUM in Boulder, Colorado in 1988, and in 1990 delivered lectures on Sri Aurobindo's yoga philosophy and Auroville at the California Institute for Integral Studies in San Francisco.

He founded the GAIA Learning Center in Crestone, Colorado in 1991. In 1993, he gave a lecture and presentation on Savitri and participated in a

panel on Auroville at the Parliament of World Religions in Chicago.

Rod has conducted annual Savitri Immersion workshops at the Sri Aurobindo Learning Center in Crestone, Colorado, since 1994. He founded the GLOBE Charter School in Colorado Springs, Colorado in 1995. In 2003, Rod published Sri Aurobindo and the Logic of the Infinite: Essays for the new Millennium. Other publications include The Poetry of Sri Aurobindo – Mantra, Metrics and Meaning (2009), and The Philosophy of Evolution – Darwin and Sri Aurobindo (2011).

From 2005 to 2013 Rod has lectured on philosophy and poetry at the University of Human Unity in Auroville, where he was also Principal of New Era Secondary School. During May-August 2013 he has presented a series of workshops on the Kena Upanishad and Savitri in the USA. Texts and audio recordings of these and other presentations are available at <http://universityofhumanunity.org/>