

# Chapter 22

## Emergence of Quantum Mechanics, Human Mind, and Happiness



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**Abstract** Understanding the mystery of mind is the main objective of psychology. Its development is influenced by the innovations in other sciences. Interestingly all the disciplines of science are related to philosophy. This paper focuses on some of the recent developments in the field of physics and consequent re-articulation of the concept of the unconscious mind and recent changes in the discipline of psychology, the paper focuses on the emergence of quantum mechanics derived uncertainty, human mind, happiness, and national well-being.

**Keywords** Happiness · Mind · National well-being · Philosophy · Physics · Science · Uncertainty · Unconscious

We have to undertake a long journey to know the deep mystery of our mind. At this point of time, we are in a position to know human mind in a scientific way, but this is a development in course of last hundred years of scientific search of the nature and functions of human mind: To know mind and to know matter, the path of science is one and unique. It is thus true that the science of mind has been influenced by the science of other disciplines, like physics, chemistry, physiology, bio-chemistry, anthropology, and other allied disciplines. Karl Marx possibly announced in this particular context that science of mind and science of matter will merge into one science. If we travel through the history of science and philosophy, we shall find all science emerged from philosophy. Philosophy is the science of all sciences.

In the context of recent development in the field of physics and consequent shift and modification of the concept of the unconscious mind and recent status of the discipline of psychology, we shall refer to the emergence of quantum mechanics derived uncertainty, human mind, happiness, and national well-being.

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## Life and Mind

Can we think of mind without a living being? We never tell that a table has mind. But trees are living being—they have pulse of life and obviously they have mind. Acharya Jagadish Chandra Bose had proved that trees have mind, i.e., they have feelings. Where there is life, there is the existence of feelings, i.e., the existence of mind, i.e., the existence of feelings, emotions, and instincts. All animals, birds, and insects have mind. What else other than feelings, emotions, and instincts are being possessed by mind—memory, thinking, intelligence, imagination, reasoning, abstract thinking capacity, etc. These are all the functions of mind. But where does this mind exist? Has this mind evolved all of a sudden?

## Nature and Human Mind

That this intelligence, reasoning capacity, logical arguments, imagination, thinking, and creative thinking capacity which are being possessed by human mind, other animals have not such capacities. But other animals have such mental apparatus by which they can somehow survive, they have feelings, emotions, instincts, and a little bit of intelligence and memory. But they are predominantly disposed with and guided by instincts and emotions. Whatever they even make and create, i.e., even because of their inborn instinctive and inborn skills. Here lies the difference in characteristics of animal mind and human mind. Whatever human beings make or at best create, they have to learn, they have to acquire skills, and they have to learn by using their inborn intelligence, imagination, and innovative or creative thinking capacity. They have to devote time; they have to learn phase-wise in keeping with pace of the process of maturation of their potentially rich nervous system and all other systems of the body. Human beings, when they are born, remain helpless, dependent beings. They have to be nurtured, they have to learn and acquire every positive habit and skills, and they have to learn how to walk, how to speak, how to be socialized, i.e., for every phase and situation for well-meaning adjustment. And most interestingly, human beings do not only “make” things in a stereotype design, but they are capable of making things in diverse designs and ways, and thus, human beings are endowed with divergent thinking capacity along with convergent, problem-solving thinking capacity, i.e., intelligence.

Human mind is rich. It is creative. Humans can not only make, they can create. They have to strive, they have to persevere, and they have to learn and create, have to be innovative for finding out solutions of a problem, for paving path to reach their life goals. They have to exert and continue their struggle for existence, not to speak of meaningful existence. But other animals lack this capacity, they are born with some such capacity, more and less stereotype in nature by which they can just maintain their biological existence. They do not have to learn to walk and speak, but some animals like birds can fly, they can make their nests, apparently with well-engineered

skills, but without any diversity. Bees make their hives so beautiful and well-designed and skilled. Spiders make their net-design so symmetrically and well-balanced, but without any diversity—i.e., stereotype. All these are being made with inborn skills, without any learning and exercise of intelligence and creative thinking. But human mind is just different at this point—because initially although they are helpless, yet they are born with immense learning capacity and creativity. Of course, there exists individual differences. All are not equally potential and endowed with such capacities. But every human being is more or less endowed with such potentialities. Conducive environment and nurture, proper schooling, and learning make possible of the blossoming of such latent potentialities.

For all these considerations human mind is a wonderful creation. Its mystery of functioning like thousands of stars in the sky are still unknown. Even then, there are many stars as yet not known. Likewise there are as yet many unknown domains of human mind. As such though science of mind has achieved unexpected heights, yet there are many things yet to be discovered and known.

## **Ontological Scientific Bases of Emergence of Universe**

Poet Rabindranath also pondered as to the ontological basis and evolution of mind from matter. According to him, the history of the emergence and evolution of earth, and emergence of life and mind awaken wonder and appear to be unthinkable. But there cannot be sudden arrival of life and mind without any link and background. Any accidental arrival or miracle without any objective basis, our rational mind hesitates to accept as truth. At best we can imagine a relation between the inanimate and animate existence, or world. There exists pervasive light or light particles both in inanimate and animate existence. After a longtime, science has recently discovered that apparently the inanimate objects which appear to be devoid of light and motion, they have also potent unknown play of electrical and light energy. The first phase of culmination and evolution of this energy gives rise to life and precisely the finest culmination to emergence of mind and consciousness. In the very early stage of the emergence of this universe and our planet earth, there was only the all-pervasive existence of light, then mind or consciousness must have emerged from this light. In the evolution from inanimate to animate and then step by step efforts of attaining consciousness and deep and deepest spectra of consciousness, super-consciousness is possibly the culmination in the progressive evolution of human mind (see Tagore, 1987).

In fact recent development and discoveries of physics have proved that each atom, the finest and smallest constituent of matter is possessed with electron–proton, which are electrically charged and light particles. And in the beginning or just at the time of birth of creation or of the universe, only particles like electrons and protons and light particles existed. In the context of this discovery of physics, i.e., the phenomenon of universal radiation or the theory of radiation is very significant. Light or any kind of radiation is also a kind of particle. This radiation mingling with other kind of particles

where there is scope of transformation of these particles, radiation also takes equal part. From the energy of radiation, particles are given birth to and again different particles combining together gives rise to radiation. On the whole like different type of particles, radiation also has also a role to play in the emergence of life and mind (Capra, 1972).

## Gamow's Views

Gamow (1952) could guess that in the past on the emergence of this universe not only radiation was very much significant, but it was so inextricably bound up with matter or particles that they were in a balanced coexistence or in a state of homeostasis. "There was much scope to give and take between matter/particles and radiation. Still now, particles absorb radiation and again return that. Sometime some particles being together cater radiation, and they again return to become particles." When the temperature of the universe was very high, then radiation in high temperature also was very acute and predominant. As on the effect of the gradual expansion of the universe, the temperature gradually decreased, and thus, less powerful light rays came out with predominant existence: they became all pervasive.

Our universe is possessed with microwaves in and around. From this angle, it can be said that our universe is as if a big oven of microwaves. We observe sometimes some part of this microwave in T.V. screen, when because of some temporary instrumental problems of the T.V. machine pictures do not reflect in the T.V. screen. We observe flickering waves of light. Rabindranath's philosophical observations have now come true in scientific terms—from this standpoint, this can well be concluded that life and mind have been sourced from one source, i.e., light—particles.

When there is life, there is mind. But we cannot know and cannot understand the nature of mind, mental process of any, and every being. We can understand human mind somehow or other because we can understand other fellow man's mind because there are similarities in the mind-set and constructs of my mind with the mind-set of other human beings. The feelings of other person we can read and understand in the context and some background and workings of our feelings and emotion—in the context of our response—patterns. Other person's feelings and emotion resonate with those of my mind-set. But we cannot read the feelings of a tree, and we cannot read the feelings and language of birds. We cannot read out the feelings and expression of other animals—even though we try to understand them in the light of our own expressions and mind-set.

In this context, recent development and discoveries of physics can be cited from which we shall well understand that we cannot understand and know whole of the mind, the knower and the known, observer and the observed—their context and purpose of viewing will determine the nature and content of the observed. Observer's purpose and standpoint of observation will be reflected in the observed object, be that an object—a particle or be that mental status or mind-set. As it is true in case of

science of mind, psychology. So it is true in case of the science of matter—physics (Capra, 1972; Heisenberg, 1969).

## Knowledge of Mind

Physicist Neils Bohr's discovery has proved and substantiated this truth. A discovery of Neils Bohr brought a new stream of thought in physics. In idea of complementarity, Neils Bohr says "in grossly simplified terms, it might be said that under certain experimental conditions, light manifests itself as if it were composed of particles, under other, as if it were a wave." (see Capra, 1972).

In certain states, light appears as a wave, and in certain other cases, it appears as particles. It has also been found out that we cannot exactly pinpoint or locate the position of a particle and at the same time measure its speed. A person has to decide which of the two he desires to measure. In this context, experimental setup has a critical role to play. Pauli says, "the science of microphysics on account of the basis of complementary situation is faced with the impossibility of eliminating the effects of the observer by determinable correctives and has therefore to abandon in principle any objective understanding of physical phenomena. When classical Physics still saw "determined causal natural laws of nature. We now look for statistical laws with primary possibilities."

The same thesis may be applied in the study of human behavior. We need to depend a lot on the viewpoint and approach of the observer. Also all predictions cannot be accurately done as expected. In psychology too, we have to depend on the concept of statistical probability, as we now look for "statistical laws" with "primary possibilities" in physics. The state of contemporary physics is being brought for discussion because Jung has tried to show that complementary nature of the opposite natured conscious and the unconscious mind which actually undergoes critical changes and ultimately mingles with the conscious mind of the person. Whatever comes to the conscious mind, it is somehow from the unconscious mind of the person. Considering in this perspective, most of the contents of a dream are not totally conscious or totally unconscious, rather they are semiconscious (Capra, 1972).

Each and every dream thus, in a way, enriches the conscious mind. Similarly, the exact nature of the unconscious mind cannot be accurately assessed or ascertained. Thus, the unconscious states of mind cannot be exactly touched or described just as the nature of particle of light, in different contexts has to be described, sometimes in the form of waves, sometimes as particles. The unconscious, therefore, can only be approximately described (like the particles of microphysics) by paradoxical concepts (see Mandal, 2009).

What it really is "in itself" we shall never know. Judged in this context, science does not remain science, it becomes philosophy as we know the difference between Kant's "noumena" and "phenomena." But science has to deal with phenomena. Whatever that goes on in the mind must be analyzed so as to get a picture of the mind that is credible. Microphysics stresses the indeterminable tendencies of particulate matter.

Similarly, the human mind too may sometimes be considered as some tendencies or dispositions. If we look into the nature of microphysics and unconscious mind in parallel terms, we find, light as sometimes appear as particles, sometimes as waves, mind sometimes as rational and conscious, and sometimes as tendencies or dispositions of primal instincts and emotions. Even tendencies of mind to think rationally, actually is a pattern engraved in mind in the form of archetypes. Archetypes thus may be considered as pattern of predisposition of emotional and rational behavior in man—the primary tendencies of actions and reactions of human mind.

According to William James, unconscious mind functions like that of a magnet in physics. As in a magnetic field, iron particles are being attracted, and they form a pattern in the mental field; similarly, mental elements enter and arrange themselves according to the pattern of archetypes in the unconscious. If we consider any thing as reasonable in the conscious mind, then we must presume that there is already an imprint of such reasonability in our preconscious mind with which there happens a resonance or correspondence. There is a significant similarity of such a concept with the concept of Kant and his “categories of understanding.” If we call something rational or meaningful in our conscious mind and accept it as a satisfactory explanation of things, it is probably due to the fact that our conscious explanation is in harmony with some preconscious constellation of contents in our unconscious.

Eighteenth-century German mathematician Karl Friedrich has said that his theory of numbers has surfaced from his unconscious mind like a flash of lightning. He said that the theory of numbers has a consistency and order which was flashed out as if someone voiced from within. At that moment, he could not even tell why and how the flash arrived in his mind. In spite of the best conscious efforts, he failed to get a theory, but the theory suddenly arrived in his mind without his knowing how it emerged. French mathematician Henri Poincare has said that he got a permanent solution of mathematical problems from a stream of probable solutions that kept coming in during an evening’s sleep. The fact that the unconscious mind is continuously working is accepted. Only a part of its functioning comes to the fore as “intuition” which can only bring into sharp focus the difference between the workings of the conscious and the unconscious mind (see Mandal, 2009).

Jung (1964) stressed on examining why an incident occurs, the purpose of the event rather than how. He tried to establish why a series of events occur—the key to the sequence of the series of such events, just like modern physics has stressed on the why of “occurred events” rather than on the deterministic approach of classical physics. Pauli expected that the concept of unconscious should not be confined to the treatment of mental patients only rather that concept should be spread to other natural sciences. Basing themselves on the theories of Pauli, many physicists have evolved the concept of cybernetics, which established certain similarities between the working of a computer and that of the human brain at the time of Freud, computer science and computers did not emerge and arrive. The concepts of modern physics have influenced to a great extent the know-how and nature of mind, particularly the unconscious mind and its immense possibilities. Anticipating these factors, Jung came to the conclusion that the workings of the mind have a lot to do with the working of physical principles. The unexpected parallelism of ideas in psychology

and physics suggest, as Jung (1964) pointed out, a possible, ultimate oneness of both fields of reality that physics and psychology study, i.e., psychophysical oneness of all life phenomena (see also Enz, 2002).

The reasons of psychosomatic illness now have their place in psychology. Upon a deeper analysis, it can be understood that mind works very much on the same principles as modern physics. In fact, if we ponder over a little bit, we shall find that without physical nature, mind cannot work—as we have eyes to see, in nature there is light, so we hear, there is air. Similarly there are internal sense organs from which impulses reach through the nerves to the brain center, and we see, perceive, and cognize. We hear through our auditory organs. Thus, we find that one, i.e., psychological phenomenon, cannot take place without its counterpart physical phenomenon. Thus, we cannot altogether disregard the idea that there exists oneness in some form or other between science of mind, psychology, and the science of matter or natural physical science.

## Jung's Views

Jung (see Jung & Jaffe, 1995) has said that numbers are not concepts which have come out from the conscious effort of mind but effusion of spontaneously occurring something in the form of symbols. From the unconscious mind which have assumed from the role of archetypes, the symbol of numbers is an outcome of this unconscious process of mind. The three basic principles of physical sciences, namely quantification, observation, and generalization, have been the cause of the universality of the scope of sciences. But all these would have been impossible without quantification and as such without numbers. Besides, flash of new ideas in science, as mentioned, has come primarily from the unconscious through intuition which ideas, however, have been subsequently established through reasoning, argumentation, and experimental methodology. That human mind can discover scientific truths is according to Jung, because of the existence of a bridge between mental world and physical world and that there exist inner similarities between these two, apparently diverse worlds of existence.

And that is why to understand and comprehend the nature of mind in depth, psychology, the science of mind, at present has been approaching to other disciplines of science, namely physics, bio-chemistry, anthropology, sociology, etc., though with particular reference to physics. The discoveries of modern physics, particularly of subatomic world, as mentioned already, have enriched our knowledge about human mind far more with depth in a greater perspective. The interpretation of dreams has also been more meaningful and flexible which was not possible with a deterministic and rather a narrow concept of the nature of human unconscious mind, as forwarded by Freud (see Freud, 1953). Observation, quantification, and generalization are the three basic principles of any science. Psychology, as a science, is no exception. And this concept of numbers and the capacity to reason are all outcome of the archetypes in the unconscious, according to Jung (1964). Psychology has been immensely enriched

by the contribution of other sciences. The discoveries of modern physics have significantly contributed to the understanding of various psychological phenomena. Jung's attempts at explaining dreams in the context of his concept of the unconscious in a greater perspective have acquired more objective and meaningful significance that was not perceptible in the explanations of Freud.

## Psycho-physical Oneness

This established scientific truth of psycho-physical oneness of all life-phenomena presupposes that in positive, sense human happiness rests on sense of well-being that has to be sourced from feeling of oneness and harmony with external and internal nature, with external and internal environment, i.e., psycho-physical existing variables—i.e., within and without. Any condition or attempt that fragments this oneness of being—either in case of physical environment or in the case of psychological environment—mars the overall sense of well-being and harmony, causes anxiety and sense of insecurity leading to fragmentation of self and oneness of being and overall sense of harmony. Human mind, as mentioned, is creative, can think and act in divergent ways, and is dynamic in terms of dialectics and opposite views—can realize in terms of thesis–antithesis and synthesis and truly in a position to move from one situation to another situation progressively. But blind pleasure-seeking, power-craving desires sourced from blind instincts and emotions, when become predominant and unbridled in one's psyche, not being governed and guided by reasoning and conscience, make everything fragmented, separated, and destroy the ecological balance in external nature and feeling of oneness and harmony in the internal nature—of human mind (Karikal, 1994).

Oneness of being in the social structure and existence is being jeopardized by external input sourced from greed and hedonistic desires of seeking comfort and more comfort and perpetrated by some people by any means, by economic exploitation at the cost of misery, poverty, undernourishment, ill-health, and illiteracy of majority of the people in the society. Exploitation in terms of caste, religion, and other artificially made criteria—also disbalances the “oneness of being”—the harmony of the social fabric and structure.

Oneness of being and harmony in one's individual existence as well as in collective existence can be ensured only through equity, justice, and fraternity, enshrined from French revolution, October revolution in Russia, struggle for freedom in America and in India, and other countries exploited and ruled by imperialist, Fascist countries. Democracy, freedom of thought, speech, religion, and respect for individuality and human dignity are the essential prerequisites for awakening and cultivating the feeling of oneness of existence individually and collectively. At the macro-level, in terms of state-character and social-character, these are the prerequisites for Individual and national well-being and/or human happiness.

At the microlevel, some such education should be catered and organized that will make each and every one to embrace and to be accustomed to a life-style through



positive education, acquisition, positive attitudes, and habits that will make one feel oneness and harmony in his/her existence with love, compassion, and an altruistic attitude toward life.

Human happiness—because of the special characteristics of human mind, as mentioned, has to be earned through learning, acquiring the techniques of self-control—and practicing it in life. Human happiness cannot be confined to hedonistic sensuous pleasure—human unconscious mind is charged with a striving for light, more light, self-expansion, self-actualization or “Ananda”. “Ananda” is a feeling of joy—a feeling of oneness with all and truly a feeling of harmony and peace. Human mind cries when even at the extreme height of comfort, pleasure, power—why? Because this human mind to quote Rabindranath—“Why does my another mind jerk with pain and cries, even when I have all access to extreme axis of pleasure and comfort.”

Here exists the beauty and creativity of human mind—it has a craving for light, for a feeling of joy, bliss, and “Ananda”. Let us conclude with the observation of Rabindranath: “There is no end of accumulation and disposition of materials and money—greed does not know any limit—the more we ignite the fire of desire and greed, the fire spreads gradually, then proceeds from self-domain to the domain and possession of others, and appears ultimately as a danger to the world as a whole. Imagining that the abode of happiness is in the outside world, one treads after mirage of happiness and ultimately is thrown into disaster and destruction.”

In this context, we cannot but refer to the views of Swami Vivekananda who in and through his life experienced the “oneness” of being (see Dasgupta, 2003). On this particular point, it was expressed that socialism would be established in the world only when it was sustained by the idea of the oneness of the universe.”—a fact established by science as noted earlier. Cutting across all geographical, linguistic, and demarcation, we are “one”—sourced from “one”—one within and without. We again refer to Maslow’s views—India is still suffering from deficit needs—poverty, illiteracy, malnutrition, and want of proper housing of the poor which is still acute (Maslow, 1939, 1943).

## **National Well-Being**

National well-being will be impossible without fulfilling these basic deficit needs. We shall have to strive for creating and catering some such conditions with immediate effect, so that everyone gets equal opportunity for food, shelter, education, and can proceed for self-fulfilling and self-actualization process. Only economic development index does not and cannot reflect national well-being. Now Human Development Index is being taken into consideration, even then psychological well-being index has to be explored and introduced. Planning Commission should be constituted with experts in the field of economics, so psychologists must have a role in the overall planning procedure and execution. In Great Britain, such efforts have already been taken. In Bhutan, measures have been taken to measure the Gross

National Happiness. Psychologists in a consolidated way should make a forum to upheld this vital proposition and execution of such program.

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