

The Existence of Soul and Modern Science

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सारांश

जीव एवं निर्जीव का उल्लेख वैज्ञानिक पुस्तकों में होता है, इसका अर्थ ये नहीं कि सभी वैज्ञानिकों ने जीव में अविनाशी, अजर-अमर द्रव्य (आत्मा) की उपस्थिति को स्वीकार कर लिया है। किन्तु ऐसे आत्मा के अस्तित्व के पक्ष में कई आधुनिक उच्च कोटि के नोबल पुरस्कार विजेता वैज्ञानिक भी हैं। इनके तर्कों का मुख्य आधार निम्नांकित बिन्दु हैं : (1) सर्जरी - 'मैंने देखा' वाक्य में 'मैं' कौन है व शरीर में यह 'मैं' कहाँ है। इस पर कई सर्जनों ने प्रयोग किये। प्रयोगों के परिणाम यही बताते हैं कि इस 'मैं' का उत्तर भौतिक अंग या अवयव नहीं है। कोई नवीन किस्म का द्रव्य होना चाहिये जो भौतिक उपकरणों की पकड़ में नहीं आता है। (2) महाविस्फोट सिद्धान्त - सृष्टि के जन्म के बारे में आधुनिक महाविस्फोट सिद्धान्त में निहित अनेक विचित्र संयोग भी ज्ञान के स्रोत आत्मद्रव्य की स्वीकृति की तरफ इशारा करते हैं। (3) अनिश्चितता सिद्धान्त - आधुनिक भौतिक विज्ञान की सूक्ष्मतम शाखा क्वाण्टम यांत्रिकी में निहित संभावनात्मक व्यवहार एवं अनिश्चितता सिद्धान्त से भी यह संकेत मिलते हैं कि सृष्टि में कुछ ऐसा भी है जिसका प्रभाव हमें नजर आ रहा है किन्तु उसको हम पहचान नहीं पा रहे हैं। (4) कृत्रिम बुद्धि - कम्प्यूटर तकनीक के विकास से कृत्रिम बुद्धि के विकास की संभावना भी आचार्य कुन्दकुन्द के समयसार में निरूपित अजीव एवं आस्रव तत्व से भिन्न जीवतत्व का संकेत देती है।

धार्मिकता, आत्मा एवं परमात्मा के अस्तित्व को नकारने हेतु कई तर्क समाज में प्रचलित हैं ; आत्मा दिखाई नहीं देता; हमारा कार्य बिना आत्मा को जाने भी चल रहा है, फिर आत्मा है या नहीं? इस विवाद में क्यों उलझें; पश्चिम जगत ने भौतिकवाद का आश्रय लेकर बहुत उन्नति की है, जबकि भारत आत्मा-आत्मा बोलते हुए पिछड़ गया है; आत्मा को स्वीकार किये बिना विज्ञान आज मनुष्य को चौद पर भेज सकता है व मृत्यु के मुँह में गये हुए कई प्रकार के रोगियों को बचा सकता है; आध्यात्मिक व्यक्ति अच्छे नहीं होते हैं क्योंकि वे आपस में झगड़ा करते हैं; वैज्ञानिक आत्मा को नहीं मानते आदि-आदि। इस तरह के तर्कों का समुचित समाधान भी इस लेख में प्रश्नोत्तर के माध्यम से करने का प्रयास किया गया है।

The spiritual science starts with the consideration of soul. When somebody talks of soul, many persons think that it is against the modern science. This attitude is not rational because the modern science neither proved nor disproved the existence of soul. How can anyone prove anything without any serious

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attempt? If we look at the budget of scientific research of any nation we would find that almost whole the budget is spent over those projects which are important either for business or for defence. Little is spent over research on soul. Even in the study of subjects like Biology and Medicine the scientific community is mainly interested in procreation and functioning of different parts of animal and human bodies.

Under these unfavourable circumstances also, many scientists have advocated the existence of soul. We would see that such scientists did not approve the existence of soul simply on the basis of their personal experience. They admitted the existence of soul under the scientific framework. They accepted soul as a necessary part of explanation of some scientific observations. Among many such scientists we would quote a few Nobel prize winning scientists such as Wald, Schrodinger, and Pauli.

Dr. George Wald of Harvard University, USA, won the Nobel prize of medicine in 1967. He advanced the logic for the existence of soul as a real eternal substance different from matter and waves of Physics and Chemistry. In his own words.

"And as Upanishads tell us, each of us has a share in Brahman, the Atman, the essential Self, ageless, imperishable..."¹

In the same article¹ Wald discussed in detail the logic behind the acceptance of soul. For soul he has used different words such as mind, consciousness, Atman, essential self. (Our interest is in the meaning, not in words).

BASIC DIFFERENCE BETWEEN MODERN SCIENCE AND SPIRITUAL SCIENCE :

Science deals with space, time, matter, motion and rest of the matter. These five aspects of the universe are attributed to five non-living *Dravya* of Jainology. For example-one may refer to the fifth chapter of *Tatvarthasutra*² authored by Ācārya Umāswāmī, 2000 years ago. *Jīva* is considered as an independent *Dravya* in Jainology. Thus in all, according to Jainology there are six kinds of *Dravya*. If *Jīva* or soul is established in science then there would not be much difference between the description of science and that of Jainology regarding the explanation of events of the universe. This statement is significant because of the fact that like science Jainism also admits that the universal intelligence is exhibited through the natural properties of *Dravya* occupying the universe.

COMPUTER RESPONDS BUT IS UNAWARE

The soul as an eternal substance or *Dravya* is not formally recognized by the modern science. But several great scientists have advanced their logics in favour of soul.

The Nobel Laureate Wald¹ argues that when light falls on his eyes he responds to it. Similarly, a photo-electrically activated garage door also responds to the radiations falling on it. Just as a computer does not feel elated when it beats a human player at chess the photo-electrically activated garage door also does not know about its performance. He also says that as far as his performance is concerned, he knows that he sees... With this assumption that he knows but a garage door or the computer does not know, he further proceeds to the light falling on the eyes of a frog. As a scientist, Wald says, that he is sure that a frog reacts to the light falling on its eyes. However, as a scientist he can not prove that the frog is self-aware of its reaction. In his own words:

"But I know that I see. Does a frog see? It reacts to light: so does a photo-electrically activated garage door. Does the frog know that it is reacting to light, is it self-aware? Now the dilemma: there is nothing whatever that I can do as scientist to answer that kind of question."

SEARCH OF CONSCIOUSNESS

Does a frog know that he is reacting to the light falling on his eyes? Does a frog have consciousness? If answer of these questions is yes, what is the location of the consciousness inside the body? To get the answers of such questions Wald consulted a great Canadian brain surgeon, Dr. Wilder Penfield. Penfield was once hoping to find a centre of consciousness in the brain. But by his experiments he arrived at the conclusion that 'it will be impossible to explain the mind on the basis of neuronal action within the brain'. It has been found that mind can neither be located in the brain nor in the nervous system nor in the cerebral cortex.... These conclusions are explained by Dr. Wald with the logic that the mind or consciousness could not be located simply because **'consciousness gives us no physical signals'**.

The whole situation is thus quite clear. The scientists on one hand conclude that the consciousness exists, and on the other hand they admit that it can not be located as it does not give any physical signal. The Nobel Laureate Wald at this juncture suggests that both these points can be valid if we consider consciousness as something made of a stuff beyond the domain of material particles and waves of modern science. Wald names such stuff as mind stuff or *Atman*. In other words, the consciousness neither consists of chemicals nor is due to chemicals. It is a special class of stuff that may be called soul or *Jiva Dravya*. Similar is the conclusion of Erwin Schrodinger who won the Nobel Prize of Physics in 1933. Schrodinger³ in his famous book, 'Mind and Matter' writes:

"Mind has erected the objective outside world of the natural philosopher out of its own stuff".

FROM BIG-BANG TO WONDERFUL HUMAN BODY

Another logic advanced by Wald is based on the wonderful nature of the universe that breeds the life. This logic arises when one studies the development of the universe starting from the Big-Bang that occurred nearly 15 billion years ago. (We are not debating the big-bang here. It may even change. At present it is also not our concern to compare the big bang model with the description in the ancient literature).

The big bang model assumes that just after the big bang the universe came into existence. At that moment in the universe there were only very very tiny particles. These tiny particles then converted into electrons, protons etc. These particles then combined to form atoms and molecules. By the union of such particles, stars and celestial bodies were formed. The life came when favourable chemicals and suitable climate became available. If we calculate the number of odds in such happenings, the chance of formation of excellent systems such as human bodies is as negligible as the chance of formation of an aeroplane out of a blow in a junkyard by a hurricane. Dr. Deepak Chopra⁴ in his famous book 'Perfect Health' has expressed this argument in very nice words:

"The universe, after all, is not, energy soup'; it is not mere chaos. The incredibly exact fit of things in our world above all, the astonishing existence of DNA - argues for an infinite amount of intelligence in nature. As one astrophysicist put it, the likelihood that life was created randomly is about the same as the likelihood that a hurricane could blow through a junkyard and create a Boeing 707".

Dr. Wald nicely summarised the difficulties in the formation of human beings by a random process in the following words:

"....If there had not apparently existed a one-part-per billion inequality in the number of particles and anti-particles that went into the Big Bang; if the atomic nuclei were not so much massier than the electrons weaving about them; if the electric charge on the proton did not exactly equal ^{to} ~~than~~ that on the electron; if ice did not float; if the forces of dispersion and aggregation in the universe were not in exact balance, then, there might still be a universe, but lifeless."

At this juncture Wald also asks:

"From our self centred point of view, this is the best way to make a universe. But what I want to know is how did the universe find that out?"

Just to appreciate so many 'ifs' raised by Wald we can take one simplest example of the floating of ice on water. Our common experience shows that

usually a substance in solid form is heavier than that in its liquid form. However, ice is an exception that it is lighter than water and as such it floats on the water. It is very powerful and essential exception. Is it by chance? One can say that the properties of water molecules are such that ice is lighter than water. But the question may be asked that why does 'nature' make such exception that ice can float on the water? By such property of water the creatures can survive inside the water below the floating ice. In the words of Wald:

"If ice did not float, it is hard to see how any life could survive a cold spell. On any planet in the universe, if a freeze occurred even once in million of years, that would probably be enough to block the rise of life, and to kill any life that had arisen."

Wald, therefore, concludes, "If ice did not float I doubt that life would exist in the universe."

THE ACCEPTANCE OF SOUL SOLVES THE TWO PROBLEMS

This highly favourable course of development of the universe is accepted in the Physics under a term known as 'Anthropic principle'⁵. According to this principle the whole creation since the Big Bang was designed expressly to lead to the existence of the human beings. Is it not a back door entry of intelligence in the Physics?

The whole explanation can be very simple if the presence of soul or *Jiva Dravya* is recognized from the time immemorial. In such case it would be very easy to say that nature is such that souls and material bodies can co-exist. This has been the line of thinking of Dr. Wald and many others. In the words of Wald:

"In this talk I have propounded two riddles: One, the very peculiar character of a universe such as ours that breeds life; and two, the problem of consciousness, mind, a phenomenon that lies outside the parameters of space and time, that has no location."

Just after writing these two riddles Wald writes the following para that leads to the solution of both the riddles:

"A few years ago, it occurred to me that these seemingly very disparate problems might be brought together. That would be with the hypothesis that mind, rather than being a very late development in the evolution of living things, restricted to organism with the most complex nervous systems - all of which I had believed to be true - that mind instead has been there always, and that this universe is life breeding because the pervasive presence of mind had guided it to be so."

Wald further clarifies the word 'mind' by recognizing mind as 'mind stuff' which is a real stuff other than material particles and waves described in Physics

and Chemistry. Wald uses the word 'Atman' or 'Brahman' as synonym of mind stuff or consciousness. By the word 'stuff' Wald wants to emphasise that it is a concrete eternal entity. As in case of matter the form of substance changes but the substance always remains. Similarly, a soul is also a substance in the sense that its form changes but it always remains. The equivalent term for the 'stuff' word of Wald in the Jain Philosophy is 'Dravya'. Different words such as mind or consciousness may have different meanings to different writers and religions. However, the conclusion which we want to derive here and which Wald derived is that *Atman* (or soul or *Jiva Dravya*) is an eternal stuff. This stuff is of different kind and as such *Atman* can not be detected by the physical instruments. Further, the eternal presence of such stuff has been responsible for the favourable nature of the universe that breeds the life. Thus by recognizing the existence of soul Dr. Wald could solve the two big problems of science.

MODERN SCIENCE DOES NOT ANSWER SEVERAL FUNDAMENTAL QUESTIONS :

It is a notion of a common man that the modern science which can send man on the moon has understood all the basic details of the matter and life. This notion is not true. Such a notion may be termed as an over faith ~~by~~ ignorance. Such ignorance is sometimes worse than the blind faith. *We have seen :*

- (a) It will be impossible to explain the mind on the basis of the neuronal action within the brain.
- (b) The mind can neither be located in the brain nor in the nervous system nor in the cerebral cortex.
- (c) The Big-Bang model of the creation of the universe given by the modern science does not provide a satisfactory scheme of the evolution of the mankind. Starting from the Big-Bang, the chance of formation of excellent systems such as human bodies is as negligible as the chance of formation of an aeroplane out of a blow in a junkyard by a hurricane.

The connection of these points with the existence of soul has also already been discussed. Now we would like to add that the modern science even can not describe the motion of an atom with certainty. (Our intention is not of criticizing the modern science. By providing the right kind of information we simply want to raise the level of logic and understanding of the readers).

QUANTUM MECHANICS AND CONSCIOUSNESS :

The most fundamental branch of the modern science is Physics. In Physics the most fundamental branch is quantum mechanics. A large number of Nobel prizes have been awarded to the discoveries related with quantum mechanics. This most modern and most fundamental branch of science - quantum mechanics - says emphatically that there is uncertainty in the behaviour of atoms. Heisenberg's

uncertainty principle is considered as one of the most fundamental principle of quantum mechanics and the modern science. This quantum mechanics leads to the probabilistic nature of the nature. The effect of this probabilistic behaviour at atomic and subatomic level appears so strong that even the basic law of causation fails. In science as well as by any ordinary logic or common sense we expect that the same cause would give rise to the same effect. This is, however, not true in quantum mechanics. Under the exactly same conditions two identical hydrogen atoms must behave in same way - such statement is valid according to the common sense or logic or by the cause-effect theory, but such statement is not true according to quantum mechanics. According to quantum mechanics the two exactly similar hydrogen atoms under exactly similar conditions can behave in different ways (for example, from the third excited state one may come to the first excited state and the other may come to the second excited state under the identical conditions). This failure of the law of causation is related with the uncertainty principle of quantum mechanics.

Because of such uncertainty, in the area of science now one can see a book with the title, '**The Ghost in the Atom**' (Cambridge, 1936).⁷ This book describes the concepts of quantum mechanics with the exploration of the probable cause of the uncertain behaviour of atoms. "**The uncertainty is inherent in the nature**" - such reply can not prevent the scientists to think further in other directions. Different theoretical physicists have used different words to express their concern that though we do not know the cause of the uncertain behaviour of atoms there may be a wealth of hidden treasures behind such uncertainty.

When a cashier in a commercial bank can not tally the actual cash with the account book, he/she checks the account and the cash again and again. The same thing happened with the quantum mechanics (physics) in this century. Its theories have been checked again and again in different ways and different kinds of sophisticated experiments have been performed again and again. But the uncertainty prevails.

As the next step for a bank cashier is to look for some missing entry in the account, similarly, physicists have been thinking seriously that, probably, we are missing entry or entries. Some physicists think that due to the effect of some unknown source the atoms are disturbed such that their behaviour appears uncertain. Some think of effect of mind or consciousness on atoms such that the mind (soul) of the scientist performing the experiment might be affecting the matter that results into the strange and unknown or unpredictable behaviour of atoms.

In this connection a quotation from the above mentioned book is worth noting: ~~nothing~~ **nothing**:⁸

"Heisenberg's uncertainty principle usually permits a range of possible

outcomes for any given physical state, and it is easy to conjecture that consciousness, or mind could have a vote in deciding which of available alternatives is actually realized."

While making any interpretation of the above quotation we should remember that here a physicist is giving entry to the consciousness or mind because he is not finding any atom or molecule or wave or a combination of all such physical things to hold responsible for the observed uncertainty given by Heisenberg's uncertainty principle. Thus in the above quotation the meaning of words 'consciousness' or 'mind' must be taken such that it should not be considered as a brain or a combination of atoms, molecules, or physical waves. The detailed definitions or differences among the words 'consciousness', 'mind' and 'soul' are not important here. The important point is the idea of entry of some thing not made of atoms or molecules or sub-atomic particles or waves or energy of physics.

In view of this situation, as already mentioned, Schrodinger accepted the presence of a new kind of stuff. It would be appropriate to emphasize here that Schrodinger is one of the founders of quantum mechanics. In the years 1925-26, when he published his famous research papers on quantum mechanics for which he was awarded the Nobel prize, he also wrote the philosophical articles with the citations from the Indian philosophy.

In short we may say that at the highest level of modern science we are admitting either ignorance or the existence of the unknown mysterious factors that give rise to the uncertainty principle in the quantum mechanics. The modern science, however, has not found out any of such unknown mysterious factors but many modern scientists believe that the acceptance of the soul may be the right answer. In other words we may say that the existence of the soul is permissible by the most fundamental science - quantum mechanics. Alternatively, one can say that the uncertainty principle in the modern physics has created a vacancy for a new theory and such vacancy can be filled by the theory of the existence of soul.

ANSWERS OF SOME COMMON QUESTIONS

To clarify the concepts we now attempt to answer some questions which are usually asked in connection with the soul and spiritual theories:

Question 1(a): We do not see either through eyes or by any scientific instrument the presence of the soul. How can then a scientist agree to the existence of soul?

Question 1(b): If a soul is a real substance, then it must have some mass (weight). Thus the weight of a person or an animal must decrease at the time of death. The scientific observations do not confirm this point. How do you explain this?

Answer: It is true that we do not see any soul by eyes or by any scientific instrument. It may also be true that there is no decrease in the weight of a person or an animal at the time of death. But how can we conclude from these facts that the soul does not exist? Space is also weightless but is a real acceptable entity. Photons have zero rest mass (weight) but are real material particles. At microscopic level we do not directly see by eyes or by any scientific instrument the presence of some of the elementary particles (quarks, gluons, mesons, etc.) but we accept their presence simply by their essential requirement in some successful theories.

In science a theory may be accepted if it does not contradict any experimental evidence and derives some conclusions which can be verified by the experiments. The requirement of visibility and weight is not a part of the scientific logic. The existence of any entity is accepted if it is required by any successful theory.

The same is true with the theory of existence of soul. On one hand it does not contradict any laboratory experiment and on the other hand it helps in understanding the existence of the life in the universe. By accepting the existence of soul the explanation of living creatures/animals/human beings becomes easily possible. We have already discussed at length to show the requirement of souls attributed with the intelligence to have such a beautiful and magnificent universe having human beings. According to the modern science after the big bang that occurred before 15 billion years the small particles were only present. These small particles then united randomly to form electrons, protons, atoms, molecules, water having maximum density at 4 degree celsius, DNA molecules, plant, insects, animals and eventually human beings. Does this sound reasonable? Would you believe if somebody says that by many many random blows of wind all the loose papers of a room can be arranged in a regular order such that loose papers have combined in the form of different books of different subjects with coherent page numbers and cohesive text? The answer is obvious: you would not agree that by such random blows of wind the loose papers can combine in the orderly form. The law of increase in entropy says that by such random blows disorder increases, order can not increase.

The nobel laureate George Wald at this juncture admits the eternal presence of souls. The universe breeds the life because of the ever presence of souls.

For those who are not satisfied with the big scientific examples and still argue that the visibility is an essential proof for the existence of any entity, we present two simpler examples for removing the misconception.

INVISIBLE ELECTRIC CURRENT :

We know that when electric current flows inside an electric bulb then it glows. The same electric current gives shock when we touch the live wire.

Such electric current also gives deflection in the ammeter. Thus we know that electric current exists. However, we do not see the current. The glow of bulb together with a theory suggests the existence of the electric current. The glow itself is not the current. Similarly, the shock experienced or the deflection in the ammeter is not electric current. The shock or deflection together with a suitable theory establishes the existence of the electric current. If we go further we would see that even the well established electron is also not visible even by the most powerful microscope. All that one can see in such cases is its effects. Such effect together with a proper theory or interpretation establishes the existence of an electron.

PARTIAL VISIBILITY OF THE MOON :

We see the different phases of moon on different nights of a month—full moon, new moon, half moon, lunar eclipse, etc. But we know that the moon never gets reduced. The moon is always whole. It never breaks. Why do we see the whole moon as a partial moon? Whether the moon is half or our observation is half?

All these points suggest that the objections raised in the question are not the scientific objections. If we admit such objections, then many things admitted in the science would not be acceptable. Thus we see that the existence of soul can not be disproved by the logic advanced in this question. Further, we have tried to see here that many observations are not understood by the modern science if we deny the presence of soul.

Question 2.: You said that it is difficult to trust the Big-Bang theory or the presence of intelligence without the existence of soul as in independent eternal substance. If it is so, why do many scientists not accept the presence of soul?

Answer : We can not answer this question directly because we can not give what is in the mind of others. Each and every person is free to believe or not believe in a particular idea or a theory. However, we can attempt to clarify the doubts of a reader who asks such a question. The following points may prove helpful in this matter:

(i) One of the proponents of the Big-bang model, Prof. Stephen Hawking, in his famous book, 'A brief history of time',⁹ has frequently used the word 'God'. As an example, on p.143 of the book he writes, "**God may know how the universe began, but we cannot give any particular reason for thinking it began one way or the other.**" (At present our purpose is not to discuss 'God' or to interpret Hawking's God. we simply want to convey that God/soul are not unpopular in the scientific community.)

(ii) Because of the historical development of science it is not very fashionable to talk of soul/God, but it is becoming more and more popular in recent years

among the scientists.

The scientists who have pursued research at the most fundamental level of the theoretical physics or similar allied areas are more likely to realise the incompleteness of the materialistic description of the universe. Such micro-Sciences are very close to the philosophy. This is one of the reasons that many of such scientists such as Newton, Einstein, Bohr, deBroglie, Schrodinger, Wald, Pauli, Josephson, Wigner, etc., have been spiritual. It is not surprising because in a room near the kitchen it is more likely to smell the flavour of the food items being cooked than in the rooms which are far away.

When a similar point has been raised before Charles H. Townes,¹⁰ Nobel prize winner of 1964 (Physics), he gave the following reply:

"I think one reason physicists tend to be more philosophical is that physics is a very basic science. Physics is concerned with fundamentals, and it leads one to a very basic attempt to understand the universe. But there are others; for example, astronomy leads one in that direction, too."

(iii) If we look at the history of development of science we would find that there has been many such occasions that the current theory has been either not accepted or not pursued for a long time. There may be many reasons for such a trend. One of the reasons is the immediate return to a scientist in the form of project funding and recognition. The slow progress in the past regarding the effect of the meditation/exercise/mind/vitamins on the physical health is a strong example to show the neglect of a valuable field. It is also worth noting that if a scientific research is not valuable to the defence or to the business then it is less likely to get a large financial support.

To support this point we may quote Maurice H. Wilkins¹¹ who received the Nobel Prize in Medicine in 1962:

"Most scientists today are being led increasingly away from the fundamental aim of science to achieve unity into rather limited ways of thinking without much open-mindedness and are doing things merely to meet limited material needs. In particular, about half the world's scientists and engineers are now engaged in war programmes."

Dr. Wilkins wrote these lines in 1986 and it appears that these are valid even today. In the same article the Noble prize winning scientist further cautions the scientists that only materialist research is a narrow-mindedness. He writes:

"It's not just a question of the war danger. It is also a question of how science is developed through educational institutions and through institutionalised science. I agree with Einstein that the sort of scientific education we have now has produced a narrow-minded way of thinking amongst scientists, so that they give no proper attention to the moral and psychological dimension."

(iv) The following statement of Dr. B.D. Josephson¹² who won the Noble Prize in Physics in 1973 is also a strong evidence to show that some scientists are very enthusiastic about the intelligence/soul/God, we mean, some thing other than the materialistic things:

"And we might hope that appropriate mathematical tools will be developed, so that in not too many years from now we'll have a new paradigm in which God and religion will be right in the middle of the picture, in-stead-of being pushed out almost entirely as is the case at the present time."

Before mentioning these lines in an article he argued in the same article with the following words:

"It is that when intelligence is present, we don't decide on its presence or absence just by seeing whether the laws of physics are obeyed; intelligence is not like a new energy source. The presence of an intelligence manifests itself via the presence of or the creation of states which are a priori extremely unlikely: states such as all the bricks fitting neatly to form a house, all being put together in the right way."

(v). Dr. Fritjof Capra¹³ who is a well known physicist and author of a famous book, 'The Tao of physics' strongly believes in soul/God and the ancient Eastern traditions. According to him his belief is based on the modern science. In an article, he writes:

"...I realized that not only modern physics but modern science in general leads us to a world view which is very much in agreement with the ancient Eastern tradition."

(vi). If there is no separate existence of soul inside a human body then the human beings would be simply an advanced form of machines which are composed of material substance consisting of atoms and molecules. A highly respectable scientist of modern era who also won the Physics Noble prize in 1963, Dr. Eugene Wigner¹⁴ has touched this point to express his views in favour of the existence of soul. In an interview on Sept. 3, 1985 he remarks:

"We are not machines. If man were a machine, then it should be

possible to describe him in terms of atoms and molecules, and I don't think that is possible."

This list of topmost scientists believing in the existence of soul/God mentioned in this article is not complete. There may be many more. This list and the names of some other scientists described earlier simply attempt to show that now the acceptance of God or soul is not out of fashion even among the best scientists of the modern world. In addition to this we should also keep in mind that many scientists are not in a position to address the issue of existence of soul because of their focus on the material goals, and the nature of training as revealed by the fact that about half the world's scientists and engineers are engaged in war programmes.

Question 3.: After somewhat more advancement in the computer technology it may be possible to create a robot with artificial intelligence such that it can share and express emotions such as fear, sorrow, joy, and anger. Would it not mean that computational power, memory, fear, anger, joy, sorrow are attributes of the material atoms, chemicals and electrical signals? Once we accept this point we would not have any special role of soul. Thus it would prove that a man is a more advanced form of the robot having material particles and electrical signals only?

Answer: This question is helpful in understanding the real attributes of a soul. For example, *Acārya Kundakunda* in *Samayasāra*¹⁵ explained very clearly that the emotions such as anger, fear, joy, etc., and the knowledge achieved through senses are not real attributes of the soul. Had these been real attributes of a soul, *Siddha Bhagawān* (pure souls) would also have possessed those. According to the Jaina philosophy *Siddhas* are without any material body. They do not have brain, lungs, heart, bones, skin, nerves, emotions etc.. They are always in a bliss state which does not depend on any electrical signal or atom or chemical. The bliss state is a real attribute of a soul.

A great philosopher of modern times, J. Krishnamurty also discussed a similar situation of emotions in a robot. An article¹⁶ in the Sunday Review also discussed this point alongwith the philosophy of J. Krishnamurty. That article also pointed out the existence of soul which is beyond these emotions and material brain. Such an understanding is very important. If a person accepts emotions as the soul then his faith would disappear when such a powerful robot would be a reality. Taking into consideration this point, above mentioned article¹⁶ has been concluded by an excellent sentence : **"The only mind that can survive the challenge of the new technologies would be such a mind which is the truly religious mind."**

Question 4.: The science is all powerful. The science can send a man on the moon. where and why do we need the faith in the soul ?

Answer : A large number of persons for a large portion of their life span are in a state of unhappiness. The materialistic possessions always lead to the desire for more and more and comparison with others that cause unhappiness. The absence of the materialistic possessions also creates frustration, pain and unhappiness if the internal fulfillment does not exist.

What is remedy of this unhappy situation? Should we not look for the source of bliss and happiness within ?

Question 5.: With the advancement of the science, the control of birth, illness and death is coming into the hands of the science. If the science can manipulate these processes then how can we believe that there is some thing like soul ?

Answer : Let us answer this question by asking a parallel question: you are watching a TV. You are watching a singer singing the song. Now you know that by the remote control in your hand you can raise the voice or lower the voice. If you wish you can shut 'his' mouth. You have very much power to manipulate many things. Does it mean that the singer does not exist? Or, many electronic components inside the TV and electronic signals through TV antenna do not exist?

If you can manipulate some processes then it does not mean that other things do not exist. Further, can the science and technology manipulate birth and death with 100% success? A detailed dabate over this point can also be helpful in understanding the nature.

Question 6.: There are so many lives in the form of insects, animals, plants, and a large population of human beings. How can they all be so glorified and precious souls ?

Answer : Why not? You can see many many big books on the structure of an atom. Millions of the research papers have been published on the properties of the atoms. A layman now asks you, "There are so many atoms in the dust, river, air and every where. Why are you giving so much importance to an atom? How can so many atoms in the world can be so important that thousands and thousands of scientists are investigating an atom?"

What will be your answer to that layman? You would say that a hydrogen atom is a hydrogen atom. You can not remove it from the syllabus of M.Sc. in Physics and Chemistry or reduce the expenditure of millions of millions

rupees on its research simply because in one drop of water there are more than 3 billion times one trillion hydrogen atoms.

Question 7.:

The western world has made more progress by making scientific advancement without bothering for soul. Is it not true ?

Answer : The financial progress of the western world is mainly due to the honesty in their business and work. Similarly, their family life is unsatisfactory due to dishonesty in the family. The scientific and technological advancement in India lacks mainly due to lack in the coordinated team work. It is not true that the western world is not religious. Even a country like USA writes, 'IN GOD WE TRUST' on every coin and currency note (bill). In the name of God the donations given by the western public is huge. The president of USA takes the oath of his office in the name of God with a religious book in his hand. With all these known facts it would be wrong to assume that the western world is unconcerned about God/soul. Many persons in the western world are highly religious. Not all persons in India are religious. Happiness and unhappiness are every where. Thus real question is to look for the statistical figures that show correlation among the religious attitude, health, happiness, and prosperity. In recent years many scientific studies are showing a positive correlation between health and religious attitude.

Question 8.: The spiritual persons differ. They quarrel. They are not very intelligent. They mislead. Then why should a person try to become a spiritual person?

Answer : (i). Dr. S. Radhakrishnan, a noted philosopher and ex-president of India, once remarked that a religious person may become nonreligious when he thinks deeply, but again becomes religious when he goes deeper. The question which you are asking may be based on your observation of former kind of religious persons. Such persons may not be religious in true sense. The true faith gives fearlessness, confidence, and purpose of life.

(ii). It would not be difficult to visualise highly intelligent and forgiving religious persons. A vast treasure of knowledge and art has been contributed by the religious persons of all times.

(iii). Without deep thinking it is easy to say that many religious persons mislead, but remember that it is very difficult to find a person in your life by whom you want to be lead in all walks of your life.

REFERENCES

- 1 (a). George Wald, *'The Cosmology of Life and Mind'*. pp. 8-21 of Ref. 1(b).
- (b). Edited by T.D. Singh & Ravi Gomatam, *'Synthesis of Science and Religion'*. The Bhaktivedanta Institute, San Francisco, Bombay, 1987
2. Ācārya Umāswamī, *Tatvārtha Sūtra*. Chapter 5, Sūtra 1-3.
3. Erwin Schrodinger, *'Mind and Matter'*. Cambridge, 1958.
4. Deepak Chopra, *'Perfect Health'*. Harmony Books, New York, 1991, p.9-10.
5. R.H. Dicke, *Nature*, **192**, 440, 1961.
- 6 (a). Paras Mal Agrawal, *'Quantum Theory'* (in Hindi), Rajasthan Hindi Granth Academy, Jaipur, 1983.
- (b). Paras Mal Agrawal, *'Quantum Mechanics'*, in the book 'Horizons of Physics', edited by A.W. Joshi, Wiley Eastern, 1989.
7. Edited by P.C.W. Davies, and J.R. Brown, *'The Ghost in the Atom'*. Cambridge University Press, Cambridge, 1986.
8. Reference 7, page 33.
9. Stephen Hawking, *'A brief history of time'*
10. T.D. Singh and Pawan K. Saharan, *'An interview with Charles H. Townes'*. in Ref.1(b), p.140.
11. Ravi Gomatam and A.J. Ellison, *'An interview with Maurice H. Wilkins'*. In Ref.1(b), (a) p. 29 (b) p. 35.
12. B.D. Josephson, *'Science and Religion: How to make the Synthesis?'*. in Ref. 1(b), (a) p.47, (b) p.42.
13. Huber Robinson and T.D. Singh, *'An interview with Fritjof Capra'*. in Ref. 1(b), p.273-4.
14. Ravi Gomatam, *'An interview with Eugene Wigner'*. in Ref. 1(b), p.261.
15. Ācārya Kundakunda, *Samayasāra*, Gāthā, 38, 181, and 299.
The essence of Gāthā 38 is that thoughts of attachment with anybody are not of soul (me). The theme of Gāthā 181 is that emotions such as anger are different from soul. The central idea of Gāthā 299 is that the entity that knows is soul, all other thoughts are not soul.
16. Asit Chandmal, *'Why the brain is limited'*. The Sunday Review The Times of India, Delhi edition, July 30, 1995, page 8.

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