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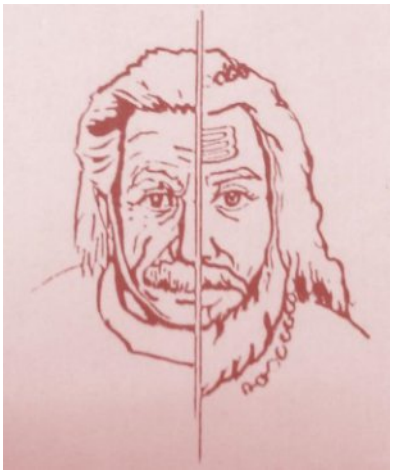

SCIENTIFIC CONCLUSIONS TO RELIGION

DR. SUBHASH DESAI

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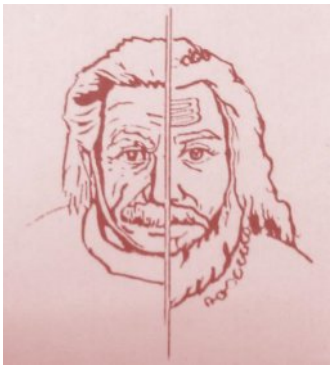

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From The Vedas To Blackhole

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Inspiration from thinker

Late Dattabal, Kolhapur

Synthesis of Science and Philosophy on concept of time

Bertrand Russel was addressing a meeting on cosmology. At the end when he invited questions from the audience, old lady got up and said, "When the earth is flat land and resting on a big tortoise then why the scientists are misguiding society, by saying that earth is moving? Russel asked the lady big tortoise rests on what? The lady said, "Poor boy you are confused because you have not read religious scriptures, you should understand there is a tower of tortoise.''

Actually many of our friends will laugh at the idea of the old lady but Cambridge mathematician Stephen Flawking says we have no definite, conclusive information regarding picture of the universe. There are some questions, not yet answered. From where the universe came where will it goes? How it begin? What was before that? What is real nature of Time? Has time got beginning? Whether time has and end?

There questions take us in the realm of philosophy to search for probable answers. At this point we learn that the universe cannot be understood through one single approach such as religious, the scientific or the philosophical. This would be like dividing the universe into compartments, which would be impossible.

The New model of Universe

The new model of the universe creates a question whether conclusion of Modern science are against philosophy? Or religious believes? I categorically say no.

Newton had a mechanical approach towards universe that gave birth to industrial revolution. The word destiny and accident was expelled out. The universe was a big machine. But law of thermodynamics changed the picture of the universe. The new biology emerged. The universe was evolving more in organized way. At the beginning of the 20^{th} century Dr. Elbert Einstein talked about the space-time continuum and the famous equation E=mc2. David Bohm called the material world as explicate and unseen, subtle word as implicate. The noted biologist Reputer Shedric said the universe does not develop by accident; there is morphogenetic field that shapes the universe. Noted Indian scientist Jagdishchandra Bose talked about the response in animate and inanimate world. Plants have emotions.

Unification is Goal

For me science and religion are aiming at one principle of unification. By law of gravitation different forms of matter were united, by electromagnetism, 2 electricity and

magnetism were united, space-time, matter-energy were united. Now scientists are trying to find out the fifth principle of the universe. Perhaps in the world of Einstein it could be the cosmic intelligence and for religious people it could be God.

Science or religion or philosophy tries to create a picture of the universe in their own way. Just as an infinite tower of tortoise supporting the flat earth or the theory of superstrings. Both are theories of the universe. Theories lack observational evidence, no one has ever seen a giant tortoise with the earth on its back, but then, no one has seen a super sting either.

I do not claim this as a very original view. What I want to put forth as my positive contribution is an attempt to show that the conclusions of modern physics, biology and astrophysics, tend to support the philosophical wisdom and religion way of life.

Concept of time

Today I have chosen concept of Time, on which science and philosophy come very close and definitely not contradictory to each other conclusions. In words of Albert Einstein Religion without science is blind and science without religion is lame.

I need not spend time, describing the scientific and philosophical terms. Instead I refer same ancient studies of calculating time. Indian, European, specially Greek philosophers Hijari, Fasali Parshi calenders are the example of systematic study of Time.

I would like to quote Indian scripture called Bhagvat Puran in 1000 B. C. had Systematic study of Time.

Indian concept of atom is smallest particle that cannot be divided. And time required for sunlight to cover that particle is called atom-time. From atom time to the period for creation and destruction of the universe is described very systematically.

Indian physicists Dr. Jayant Narlikar (who worked with Prof. Fred Hoyle on steady state theory) supported the Indian view. The concept of the year of Brahma and the present scientific age of the universe 3.33 Billion year is very similar.

Now I would like to discuss the views of another noted physicist David Bohm. He says, we cannot understand time except from the stand point of the ground of eternity. If we attempt to make time self referential, it is going to lead to chaos. Past and future are always present and overtones of the present.

We may be remembering the past but the memo is present. The future might be simply the depths of the inner world of the implicate order which is unfolding.

I shall quote two more scientist and next come to explain philosopher's approach, Stephen Hawking who holds Sir Isaac Newton's chair as Lucasian Professor of mathematics at Cambridge University and is widely regarded as one of the most brilliant

theoretical physicist since Einstein. He has written a wonderful book. A brief history of Time. He gave me permission to translate the book in Indian Language 'Marathi'. For him time and everything else are really in us. They are just mathematical models that we used to describe the universe. It is really meaningless to lalk being outside because we are inside the system. Hawking explains that we measured time firm big bang. His question is then what happens before Big bang?

Timeless Universe

Recent studies have challenged the theory that the brain represents time with and internal clock that emits neural ticks and suggest that the brain represents time in a spatially distributed way.

Past, present and future are the concepts may just be a part of a psychological frame in which we experience material world and changes in it.

Scientists at the scientific Research centre Bistra in Ptuj slovernia, have Theorized that the Newtonian idea of time as an absolute quantity that flows on its own along with the idea that time is the fourth dimension of space-time are increase. They replace the idea as time as a measure of numerical change.

The view does not mean time does not exist but time has more to do with space that with the idea of absolute time.

The researchers Amit Sorli, Davide Fiscalitti, and Dusan Klinav explain space time as four dimensions of space. In other words as they say the universe is Timeless.

Buddha and Timeless

Now I would like to focus your attention on the concept of timeless and experience of timelessness according to philosophers like. Gautum Buddha Bhaskracharya and plato.

According Buddha the experience of enlighten is timeless. It is an experience Beyond the process of the mid, conditional by time, Hence it is beyond time therefore beyond the thought process.

It is the experience of pure dhama beyond mind made time dimension. It is realization of the mind's own ignorance with the dawn of mind's own ignorance with the dawn of wisdom. The familiar phrase. Akaliko Bhagvao Dhammo means dhamma is timeless. It clearly implies that dhamma that Buddha that Buddha preached was about a process beyond time (ध □वतम्म सू□ नं. ५६....११ सू□ पिटका संयु□त निकाय)

I here remember saint Augustine, when some atheist asked him what did God do before he created the universe or before time began? If I happen to be there I would have answered God was preparing well for people who asked such questions.

But Augusine was a great saint and he said that time was a properly of the universe that God created and that time did not exist before they begin of the universe.

So here we come to a point where scientists and philosophers agree that.

1) Time did not exist before the beginning of the universe.

2) Universe is timeless.

3) Universe is multidimensional.

4) When we go beyond mind we can experience of timelessness is enlightment.

In the part of my paper I would like to discuss the impact of the concept of time on different human groups on their behavior.

Impact of concept of time

There are some religions who believe in circular concept of time and another in linear concept of time. First belief supports the concept of rebirth. Here the experience of past, present and future is repeated. Present deeds give fruit, good or bad in future or in next birth. This could help to support moral behavior which ultimately evolves human being to the stage of self realization or Enlightens.

While linear concept of Time gives a feeling that past present and future are in on line. Present will never come again so enjoy whatever is possible now. I could give hedonistic approach life.

Of course I humbly admit this thinking process needs more deep analysis and observation.

But I would like to appeal to my friends that every culture has very important treasure of thoughts and like concept of time and measurement of it could give new vision to the field of science. Science and philosophy are going to seek for knowledge or truth according to their own way. As it is said in Indian tradition all rivers ultimately lead to ocean of Truth.

CONTENTS

1. PREFACE

There is a view that science and religions are antagonistic to each other. As science advances, religion declines. The underlying belief is that science has rational approach and religion has a superstitious approach towards establishing facts. But it is possible to view the relationship between them in another way. One may hold that religion is concerned with establishing the validity of a certain way of life and developing certain attitudes towards all that is. The present writer accepts this way of thinking.

I do not claim this as a very original view. What I want to put forth as my positive contribution is an attempt to show that the conclusions of modern physics, biology and astrophysics, though themselves of a factual nature, tend to support the religious way of life.

What is characteristic of religion is an attitude of entire submission before a reality which lies entirely beyond the realm of ordinary experience and which some people would like to call God. I shall try to show that modern scientific conclusions will justify this attitude of awe and respect and a sense of mystery.

In the next chapter I have examined the psychological foundations of belief as such and in the chapter that follows, I have analyzed religious belief.

In the chapter four I have referred to the relation between science and religion in grater details so as to lay down the parameters of my work. The relation between the scientific mystic and the scientist is also explained.

The tremendous expansion of scientific knowledge in modern times has a profound influence on religious belief. There are disputes in some fields of science and religion. There are claims and counter claims of science and religious experiences. Some of the modern conclusions of science contradict assertions derived from religious scriptures in some fields' e. g. sun circling the earth but halting in its course at Joshua's command is no longer credible in the light of modern scientific knowledge. The concept that a world was created some 6000 years ago can no longer be regarded as a reasonable belief. Similarly in Islam there is an expectation that at some future date the decomposed corpses of people, generation after generation will rise from the graves. The bodies will rise in good health for the last judgment. The scientific knowledge and evidence are however against dogmatic assertions. Now regarding modern science which deals with

the expanding universe can study new models of the universe without any reference to God. Does it follow from that there is no God. It depends on the concept of God that entertains.

There could be some proof of cosmic intelligence in the universe and then God becomes relevant in this age of science.

The modern science is exploring the order out of chaos, the self organizing nature of a cell, the implicate and super implicate forms of nature, intuition sources of true knowledge etc, these fields of science offer no contradiction to religious faith.

Science stands and falls with the empirical method. This involves formulating one's hypothesis subjecting it to empirical experiment via carefully collected, observed data. This data will verify or falsify the hypothesis in order to draw conclusion that will be a theory or perhaps even a law. Equations such as *E=mc2* are the symbols that carry the message of science and mathematics becomes a language or the message, in the course of describing the scientific method. I have shown how the observer affects the observed and have compared with idealism. Then I turn to the branches of empirical science. I have first considered some ideas developed in physics and astrophysics, such as expanding universe, the big-bang theory, space-time matter-energy. I have tried to find out if they take us any length towards religion and what the mystic has to say. When I found some ideas do not lead us towards religion I have tried to consider whether they are at least, compatible with religion. I found that they are complementary to religion.

Later I have turned my attention to the biological science to see if there is anything to support the religious way of looking at things. The oriental religious look at life as something sacred and they sanction an attitude of awe and respect before anything living. They hold that there is a point in turning ourselves towards the world of plants and the world of animals. Saint Tukaram said, "The trees and creepers are our kith and kin dwelling in the forest." Saint Dnyaneshwar said, "Which so ever meets you consider it as God in-carnet."Man is not an isolated organism merely responding to the universe around but life which pulsates in man is the same living principle that enlivens all living things. This out-look makes life full of meaning. Even when I die the stream of life (Elan-Vital) continues and through that I continue to live. I become imperishable. This is a boon that religion brings to me.

But this should not be a make believe. I have tried to show some parallel thoughts in science of botany, the cellular consciousness, and plants have memory etc. In considering

the latest conclusions in genetically engineering one may find very startling conclusions such as genetic information passing from one generation to another across a distance.

Communication between cells exists. There are self organizations in cells, while doing this I have relied on scientist lllya Prigogine's conclusions. He won the Nobel Prize in 1977 for his work on thermodynamics of no equilibrium system. He showed that communication and irreversibility are closely related. He has answered the questions of the relation between being and becoming, between permanence and change. Irreversibility is the mechanism that brings order out of chaos.

Now scientists are interested in the early universe. One is interested to know where it came from and how the universe arose. Scientists like Stephen Hawking are reasonably confident that they know the history of the universe up to one second after the Big-Bang.

What happened before that is much more speculative. Scientists have no explanatory principle for the edge of space and time. For the present, this remains a mystery. Present science can't go further and answer the question what happened before time began? These questions lead us to outside the realm of science and there we are in the realm of religion and philosophy. Here we learn that the universe cannot be understood through one single approach such as the religious, the scientific or the philosophical. These approaches are not separate. Each is going to seek for knowledge or truth according to his own way. As is said in Indian tradition, "all rivers ultimately lead to the ocean."

My concluding chapter is regarding timelessness. I hold that mystic's experience of unity with all that is the communication of religiosity. A characteristic of this experience is the sense of timelessness. I may be said to bestow on us immortality which is the beginning all and end all the religion. I have shown that modern science supports the concept of timelessness.

2. WHAT IS RELIGION?

The title of this book is, "The Relevance of Modern Scientific Conclusions to Religion." But any view on this subject presupposes a stand regarding the relation between science and religion. This is an old subject.

It has been discussed by eminent persons throughout the centuries. But I have to formulate my own stand in order that, later, I may be able to put forth my views regarding the possible repercussions of the conclusions of modern science on religion.

It has been said by Frazer in his 'Golden Bough' that both religion and science originated in the primitive man's attempt to satisfy his needs from the nature. At times, he achieved that the processes in nature are due to some unseen powers hidden in nature. He thought of propitiating them by offering whatever he thought would please them. Sometimes he extolled them, coaxed them or offered them things like ghee and honey. We find a proof of this in early Vedic literature.

In the Rig-Veda Samhita we find various gods. The same Samhita shows that development of Aryan Religion and philosophy proceeded along two directions. In one direction there was the idea of gaining favor of gods by means of worship. The form of worship was known as Yajna or sacrifice. In the second direction Aryan religion developed a more philosophical conception about the nature of these gods. It developed in the idea of the higher spirit. The Brahmanas developed the ritualistic said by elaborating endless mechanical details of Yajna while the philosophical ideals were developed in the Upanishadas.

The age that followed the early Upanishadas saw new developments in religious beliefs. Keeping Upanishadic thought on the background different systems of religious beliefs developed. In each of them, there was a belief in a personal god to be worshiped with devotion (Bhakti) rather than an impersonal and absolute god (Brahman) to be realized through meditation and knowledge.

There are prayers to Indra, Varun, Marut in Rig-veda.

मा न□तोके तनये मा न आय□
मा नो गोषु□मा नो अ□वेषु रीरिषुः ।
वीरान या नो □□ , भामितो वधीर
हावि□मन्तः सदाभि□वा हवामहे ।।

1) We offer you ghee and we always worship you hence do not kill our brave-tmen, our children and do not make injury to our cows and horses.

2) Rig-veda refers to the prayers to lord Indra (अ – २ sukta 20 - 316) Do thou accept, O Indra, this our sacrifice (this our) rite, being our promoter. May we, the praisers, O thunderer, winning the battles through thee obtain wealth like a hunter.

इमं य□ं □वम □माक भिं□ पुरी दध□सानि□यसि □ □तुं नः ।
□वलनील व□ □□सनये धनानां □वया वयमच आजिं जयेम ।।

3) Let us praise that Indra, alone in the sacrifices who is the lord of great and high riches, (Indra) who conquers with vajra in the regions rich in cows and who bravely leads his devotees to great wealth.(अ - २ सु□ त २१ - ३१७वेदाथ□य□न)

At other times man thought that there were certain key points in nature. If one operates them properly, one can nature work this way or that way. This was the beginning of magic. Some persons claimed they are efficient in the art of subduing nature. They became the priests in society. The priests played a double role. Sometimes they propitiated the deities on behalf of the clients by praying for them but other times they played as the magicians. They knew the techniques of making nature yield to man's desire. The doctrine of sacrifice especially as we find it in the Brahamanas a part of the Vedic literature testifies to this role of the magic priests. Underlying this attitude there is a belief that nature is such that if you do certain things, certain other things may necessarily follow. Science as we now know is a superstructure on this elemental belief. When we work it out logically it becomes what is called the principle of uniformity of nature.

These may be or may not be the historical origins of religion and science. We are concerned with the developed nature both of science and religion. Historical origins shed very little light on their present day nature.Cagliostro, Eliphaz Levi, Madam Blavatasky, Alester Crowely all had elements of Charltan and Showman, yet no one, who studies their careers with open mind can deny their paranormal powers.[1]

[1] The encyclopedic Dictionary of Psychology. Edt. Rom Haree and Roger Lamb, page 432, 1983.

Certainly, one of the oldest thing about the history of magic and witchcraft is that their basic beliefs, have been unchanged over the course of at least three thousand years and that they can be found in all parts of the world. It is worth bearing in mind that the older explanations have the virtue of consistency as well as of unanimity throughout various historical periods. This, however, is just an indication of the historical origin of science and does not, in any way, characterize the nature of science.

We may now lay down a few characteristics of religion. It includes among other things, the following characters. It believes in –

1) The existence of an anthropomorphic God.
2) Life after death.
3) A world beyond this material world.
4) Salvation of the soul or its libration.
5) Observing moral and religious laws as methods for attaining liberation.
6) The existence of a super consciousness beyond rationality.
7) Faith in the experiences and Knowledge of religiously enlightened people.
8) Good act and its reward in future time.

The Hindu concept of Dharma is expressed in many ways. Whatever is told in Vedas and Smritis was considered as religion (वेदो खिलो धम□मूल□म). Some believed the force that holds people in society together is religion.

धारणा□धामा□इ□याहुः ।

The holy Quran says that- all revealed books of God are one and that real religion lies in devotion to God and righteous living. It is on these main teachings of all religions that Quran desires the entire human race to agree.[1]

Belief in God is expressed in the following way. Verily they who believe (in the message of Prohet Mohammad) and they who are Jews and Christians and Sabians whoever believeth in God and the day to come when the life lived is to be accounted for, and doeth that which in right shall have their recompense with their Lord. Fear shall not come upon them, neither shall they grieve.. .. Quran 2-8-62.

[1] (Tarjuman – A 1 – Quran Volume – II Page 307, Dr. Sayed Latif's Trust, Hyderabad)

WHAT IS RELIGION?

Some of the definitions of religion discussed by Western and Eastern thinkers are as follows:

1) Religion is a belief in supernatural beings- EB. Taylor.

2) For E. Deivkhan 'Religion is a social Phenomenon.'

3) Dr. Freud thought of Religion as that which consist of certain dogmas, ascertains about facts or conditions of external or internal reality which tells us something that one has not discovered oneself and which claims that one should give them credence.

4) Holding says, "Religion is a belief in the conservation of values."

5) Dr. Radhakrishnan defines, "Religion as a way of experiencing the union with God."

When we come from early beginnings of religious thought and life to the later organized religions like Christianity or Islam, we find that they have three ingredients.

First, there is an element of belief in things transcendental. It could be regarding God or Gods and the way they behave towards man, regarding life after death and such other things.

Secondly, every organized religion imposes on its follower some actions.

A Christian, for example, must attend the Sunday church-services or a follower of Islam must pray five times a day with his face towards Mecca.

Thirdly, and most importantly, there is an attitude which characterizes the religious man. He wants to lie prostrate before what he regards as the Supreme. He ought to surrender totally himself before what is ever beyond.

For us it is this attitude of religion which is important. The organized religion or religions are concerned with religiosity as such. How is this submission before supreme relevant to science? This should be our main concern.

This above mentioned attitude is sincerity par excellence. Everything around man is impermanent. Nothing lasts; death and destruction swallow everything. Man turns in the world and asks about the meaning of his own existence. From times immemorial, he is seeking something everlasting. He is in pursuit of the Upanishadas call Amrutatva- eternity-immortality (अमृतत्व). This makes him religious in the highest sense. Religion

may be defined as man's supreme concern with himself. It is what a man does with his own loneliness. If life has not a purpose the universe becomes absurd. Man is afraid of the absurdity, so he turns inward to seek some assurance.

He does some acts because they are right and he seeks some ends because they are good. But if the rightness of the act and the goodness of his achievements affected from the universe, what meaning has life? He wants an assurance that the rightness of his acct is an objective fact and will remain there forever. He wants an assurance that the goodness which he achieves has something to correspond within the structure of the universe. Religion makes him believe that the universe is such as to satisfy his aspiration in these regards. In other words – Religion is the belief in the conservation of values.

Values, of course, cannot be dead and inert. They must be vibrating and pulsating. But could they be objectively there if the universe is a machine? One cannot imagine the things in this way. If values are really there and if they are conserved, there must be a consciousness which holds them and understands them. This consciousness will, of course, far surpass the human consciousness. It may perhaps incorporate the consciousness of every individual, but nevertheless, it will be a consciousness.

Now, for us the point is, whether science as we understand it, can make room for such a consciousness or entity. Let's therefore ask what is science?

WHAT IS SCIENCE?

Science begins with matter of fact. It is thoroughly empirical in temper. A fact is whatever actually can be experienced by our sense organs, not by the sense organs of this or that person but of any normal human being. Whatever is ascertained in science must be publicly demonstrable. Its aim is to explain such facts. Facts of experience are apparently inconsistent. The rising sun is soft and yellow but at midday it is scorching white hot sun. A stick dipped in water appears bent. A stone let loose from our palm falls to the earth, gas balloon let loose from our fingers rises up in the sky. The business of science is to explain facts by deducing them from what is called a law of nature. Science is out to discover and systematize laws of nature. Occasionally it may establish some facts by its method. It may, for example, discover the radius of the Earth. Its, main aim, however, is to establish general laws which may explain particular facts. These facts are directly given in our experience.

Science begins by observation of these facts. If the observation is controlled, we call it an experiment. Care has to be taken that the observation is objective. This means

that our hopes and fears or our wishes and desires, likes and dislikes must not affect the observation. The next stage is to formulate a hypothesis which will explain the observed facts. It must be possible to draw from it some conclusions which can be actually verified. As Popper says, the hypothesis must be falsifiable. That means there must be a way to show that the hypothesis is false if it were false. If there is no such a way it is not a scientific hypothesis.

If a falsifiable hypothesis is verified and not refuted, then it is accepted, provisionally, as a general principle or a law of science. It can never be taken as incorrigible. Attempt is always made to fit in such an established hypothesis in the whole system of laws so far accepted. If one finds an element of incoherence between the accepted knowledge and the new general law, one has either to make small modifications in the accepted body of knowledge or reject the new hypothesis. The whole stock of knowledge accumulated by this method is scientific knowledge or science.

Now really speaking, there need not arise any clash between science and religion. The man of religion will just say that he accepts the whole body of science. That something is vitally related to the whole of his life. He accepts a mode of life in which there is an entire submission before a power that lies beyond. How can science ever prove that this attitude is wrong or right? The man has chosen that style of life and science cannot prove religion to be false. But the man science will say that there is an element of belief in the attitude of religion and if that belief is knocked out the attitude becomes unsupported. Hence science has a right to refute religion.

To understand this point, we have to take note of what is called the scientific temper. It has the following three elements in it.

A) Science insists that in observing anything, our outlook must be perfectly objective. It must not be value loaded, as the man of religion looks at things in a value oriented manner.

The man of religion really need have no objection to this demand of science. The Geeta says that a man ought to cultivate dispassionate attitude. Religion does hold that truth will reveal itself only to a person whose intellect is free from attachment and aversion.

B) Science holds that whatever happens in nature under certain circumstances will happen again if the circumstances are repeated. If I put three cups of water in a kettle and put it on a stove on Sunday and water starts boiling in seven minutes it will also start

boiling tomorrow (Monday) if the same circumstances are repeated. The flame that burnt my finger today was of an oil lamp; tomorrow it need not be of an oil lamp of the same color. To this the scientist will reply that we have to analyze the circumstances in such a way that repetition of a cluster of them is followed by certain experiences which we call the effect.

The scientists assume that the universe is such that it is always possible to analyze a given situation in such a way that cyclic recurrences are discovered in nature. Roughly this is the principle of uniformity of nature. It is something that science cannot prove but has to assume.

C) It is an assumption of science that physical reality is all that there is and the method of science therefore is the method of knowledge.

By physical is meant one or more of the following three things:

1) The physical is which cognized by our sense organs.
2) That which exists in space and time is physical.
3) The material or physical is that which is governed by a mechanical law.

It is not conclusions of science which no against religion. Because one night well says that religion describes a style of life which no scientific conclusion has a reason to oppose. Religion belongs to the sphere of value and science is concerned with facts. Factual statements do not contradict value statements.

SCIENCE VERSUS RELIGION:

But it is the assumption which go with the method of science that seem to conflict with the religious way of life. Let us review them.

Science relies on facts of experience. Religion has no quarrel with this stand. Religion would also say that it justifies itself by religious experience. A Protagonist of science will interrupt here. He will say by experience science means sense experience and further it is public experience. This is to say, it is open to everybody. But what is hinted at by the term religious experience is something very different. Science cannot put it mark of approval on that sort of experience. The religious man may answer this objection as follows:

It is true that our senses give us an approach to reality. If there was no sense experience there would be no knowledge at all. But it is also true that the senses put a limitation to our knowledge of reality. If there is a small foreign body in the sole of my

foot I may use a magnifying glass. One has a right to ask what are the real nature or shape and size of that foreign body. It s what the unaided eye sees or is it what the magnifying glass shows. We cannot say the foreign body as shown by the glass is not the reality because that would not help us to pull it out. We may therefore say that the eye has its limitations. This is true to all our sense organs. That is why the Jains say that the sense knowledge is indirect; the direct knowledge would be without sense organs. The sense organs are like the windows through which knowledge comes in. But the window presupposes the walls. There could still be knowledge when neither the windows nor the walls there.

Secondly, the man of science boasts that the experience of which he speaks is public. It is open to you and to me and the passer by. The so-called religious experience is limited to a few people. Very few indeed: To this the man of religion might reply that this is true in many other cases. It is not given to everybody to perceive the beauty of music. Only a gifted few can appreciate it. But this does not mean that musical resonance is an unreality. Religious experiences are available to few but ways have been prescribed for cultivation of a proper personality to attune with that experience. It does not become unreal because few can attain it. It is also said by persons like M.N. Roy that the experience of Shri Ramkrishna or Vivekanand are pathological, that is to say they are the fantasies of a deranged mind.

But how does one distinguish between a pathological mind and a normal mind? Surely it is not a question of a mathematical average. The experience of a religious man should be assessed as valid if it brings satisfaction to the man who has it and also if that man can spread his joy around. One can surely hold that a Dnyaneshwar, Tukaram and Ramkrishna Paramhansa pass this test very well.

The assumption of science is that the whole universe including human body and brain is governed by laws of nature. But the language of religion speaks as though exception can be made to these laws. Religion often speaks of miracles which clearly imply a rupture in some laws of nature. And even if religion does not rely on miracles it has to speak of a consciousness which is involved in the scheme of the universe. This is to betray the universality of the laws of nature.

To this one might reply that one and the same event can fit in consciously arranged scheme of things and also as a link in a mathematical chain of events. It is like a point which can lie on two straight lines running in two different directions. This was hinted at by Spinoza when he said that the attributes of thought and extension are infinite in their kind.

Secondly, one might ask what is the scientists' belief in a law of nature like? Is it an event? Then it must be opposite belief, that also is an event and it must have its cause. Now why is the scientists' belief true and not of the other man? One cannot answer it in terms of any law of nature because both the events are due to terms of any law of nature. One has therefore, to say that one sees the truth of a belief. Well then, this seeing is in the non-natural world (natural world is that which is governed by natural causes). If you allow the existence of something outside the natural world you cannot limit it only to the seeing of truth.

Truths of religion may have their abode in the region which lies beyond.

It is said that religion is not amenable to the method of science. But why is the method of science regarded as valid?

The answer would be because of it yields science which is valid. But why is science valid? One answer could be science has produced technology which has changed and changed for the better, the whole course of human life. We cannot now imagine life without trains, plains, electric lamps, phones, Televisions etc. These things could not have been there without science. Therefore, the method of science is respectable. This is a good argument. We should accept the method of science, science itself and the technology made some other method which gives us knowledge could also be respectable if it provides a man with a satisfied life and a griefless death. It is the claim of religion that there are other methods which provide as the scientific knowledge but that does not detract from its validity.

The conclusions of what has been said above are that there is no conflict between the truth of science and the beliefs of man of religion. For his beliefs, he claims a special method namely of faith which is not adherence to a dogma. This would be made clear in a subsequent chapter. Here it is enough to say that the conclusions of science are not inconsistent with the demands of religion. If, however, we come to the conclusions of modern science, they have a tendency to validate the beliefs of religion. This is something more than to be consistent with them. In the subsequent chapters I will take sciences like Astrophysics, Physics, Psychology, and Biology and show that the sciences have arrived at conclusions which strengthen religious beliefs which are held on the basis of intuition and faith based on it.

We begin our discussion with the nature of belief.

3. NATURE OF BELIEF

I) Nature of Religious belief:

Many times it is asked: does religion make sense in that its basic concepts and processes of belief are unintelligible to modern man? Or does religion make sense in which it is, or can be made rational? To answer such inquiries, in this first part of this work, I shall try within the limits of my own ability to explain what belief is? Naturally I shall ultimately try to answer why we should accept faith.

Of course, I have no wish to conceal the fact that I regard myself a religious believer. In the first part of this work which is concerned with the defense of religion, however I hope it will be clear that I am motivated by philosophical curiosity rather than by emotional or devotional attachment. Here we need not try to explain the attributes of God or the different rituals or methods of sacrifice. We are not also dealing with different religions but with religiously as such.

It is no doubt to be expected that I shall reach the conclusion that religious belief is intellectually respectable. But I hope that I shall do so with a degree of impartiality, which will render the scientific exercise.

Now we shall try to understand the meaning of belief and its method. In the process we will have also to understand in some details, faith and its correlations.

While thinking about belief we must first know what it means. It means the mental endorsement or acceptance of something thought as real.

Belief, it seems, has several senses in language as seen in following sentences:

1) I belief in simple living and high thinking.
2) I belief that she is his sister.
3) I belief, God exists.

Previously there was some difference of opinion regarding the definition of belief but modern scientific conclusions of Psychology have brought to an end the historical differences. There are two ways of distinguishing belief from other mental states.

1) The term has been used to include all states of mind in which the object presented was not explicitly declared unclear unreal. This way makes it possible to say that we believe in our sensation as well as in our reasoned or scientific conclusions.

2) Belief is considered in another school of thinkers as appositive endorsement and not merely an indifferent acceptance of something as real. It is an attitude over and above the uncritical consciousness of bare experience.

Thus belief is explained in various ways by different authorities.

a) It is held that belief is a sentiment, an emotion of conviction.
b) Irrestible or inseparable association (James Mill)
c) It is an active determination, either voluntary or involuntary. It is a personal attitude towards the play of presentations.

Our beliefs are divided into two categories.

1) Belief in external world of fact on the basis of 'Sensations' and memory co-efficient and,

2) Belief in the truth on the basis of the intellectual co-efficient or evidence.

Modern and even old psychology had said that in disbelief we have state of belief in a contrary truth. It involves the same sort of reflective determination as positive belief. THUS PSYCHOLOGICALLY, THERE IS NO DIFFERENCE BETWEEN BELIEF AND DISBELIEF. THE CONTRARY OF BELIEFF IS NOT DISBELIEF, BUT DOUBT.

We often talk about conviction. Its meaning is very much like belief. It is making up one's mind; being convinced, weighing evidence are phrases over describing the complex play of ideas preparatory to belief.

In our present study, we will consider the meaning of belief in religion. In philosophy of religion, the term is employed in quasi-logical sense to denote the kind of judgment which is based not on purely intellectual grounds for affirmation, but on sentiment or will, especially in their reference to practical life. This may be illustrated by the common usage of the words 'make believe'. Belief is different from make belief or will to believe. It has made the basis of more or less important views classed together under the term faith-philosophy. Faith is practically identified with belief. It is the personal acceptance of something as true or real.

The belief in the nature and value of experience or experiences has special meaning in religion. Firstly we believe that the divine or super natural can and does establish relation with man. Secondly there is also a belief that every happening has a cause and when we are unable to trace the natural causes we believe in a supernatural agency.

II) Scientific attitude and belief:

It is essential to understand the influences which have created the problem of unbelief today. The major influences are the growing scientific outlook, an awakened social conscience and interest in world unity, now the situation is such that no religion can hope to survive if it does not satisfy the scientific temper of the new age. Every religion has to sympathies with these social aspirations and fosters the unity of world.

Religion as it is generally understood is opposed to the spirit of science. Religion is supposed to be dogmatic while science is empirical in method. Science does not depend upon authority but appeals to communicable evidence that any trained mind can evaluate. Science does not admit any barriers to freedom of thought and inquiry. It welcomes new knowledge and new experience. A true scientist does not take refuge in dogmatism but in freedom of inquiry while auhtoritarism is the dominant feature of religion.

Besides, we are impressed by the element of university in scientific attitude. For scientific development there is no boundary of nation or geography, scientific can easily exchange information with fellow workers. In other lands, secrecy is repugnant to the spirit of science.

Each religion claims that its scriptures are unique and that the word of God and so infallible. These are the scriptures inconsistent with the rational spirit of science. The inconsistencies were due to the fallible minds of men who claimed to have received the revelation.

Professor C.H. Dodd observers, 'Religious belief is even more than scientific propositions subject to relativity.' The religious man, like the man of science should be aware that the best statement he can make to himself in nothing more than a very inadequate symbol of ultimate reality.[1]

Many of the religious belief expressed in scriptural texts are not to be taken literally e.g. the doctrine of the solid heaven. If they are taken literally they will be at variance with the findings of science. Therefore, religious authorities condemn all attempts which degrade the belief in scriptures.

At the beginning of the seventeenth century, Copernicus dethroned the earth from its pre-eminence; Luther was profoundly shocked. He said, "People give ear to a man

[1] C. H. Dodd – The Authority of the Bible (1928), P. 20.

who suddenly became a famous astrologer. He shows that the earth revolves and not the heaven or the vault of the heaven, the sun and the moon, whoever wishes to appear clever must devise some new system, which of all systems is, of course, the very best. This fool wishes to reverse the entire science of astronomy, but sacred scriptures tell us that Joshua commanded the sun stand still and not the earth."

Similarly Calvin rejected Copernicus theory that the earth moves round the sun. It is establishes, that it cannot be moved and explained 'who will venture to place the authority of Copernicus above that of the Holy Spirit?'

The code of canon law was introduced by the censorship policy of the church. By this ordinance all books defending atheism, materialism, divorce, dueling, suicide, abortion, and contraception were banned.

Another example can be given of the hostility of religion. This is in relation to conveniences made available by science. When anesthetics were used to relieve women of pain in childbirth, it was argued that God had intended woman to suffer. Otherwise he would not have made childbirth painful. To mitigate women's labor pains is to thwart Gods intentions and is therefore impious.

These sorts of distorted and negative views towards life extended even to the field of human learning and art, poetry and painting, music and literature. These sources of knowledge and pleasure were treated as snares of devil. Thus religionists were told to be afraid of God. This fear of God was the obstacle in the scientific progress.

In India when the question of the abolition of Sati arose, the fundamentalists turned to scriptures and quoted texts and did not concern themselves with human life and misery.

Such things are possible only when true belief in god dies out and niceties of ritual and the dogmas become powerful. Our conscience is anaesthetized by dogmas. Scientific attitude is the antidote for such anesthesia of dogma.

The case of Islam was not different from dogmatic Christians and Hindus. The great plague of fourteenth century, the Black death, furnished occasion for muslim physician in Spain to free themselves from theological prejudice which regarded plague as a divine punishment and to consider the epidemic as a contagion. The celebrated Arab statesman, historian and physician Ibn al-Khatib of Granada (1313-74) described it in a famous treatise on plague. In it we find the remarkable, passage 'the existence of

contagion is established by experience and study and the evidence of senses by trust-worthy reports on transmission by garments, vessels, ear-rings, by the spread of it by persons from one house, by infection of a healthy sea port by an arrival from an infected land-by the immunity of isolated individuals and nomadic Beduin tribes of Africa. It must be a principle that proof taken from the traditions has to undergo modification when it manifests with the evidence of the perception of the senses.[1]

This was a very bold scientific attitude against religious belief in the days of darkest orthodoxy. These scientific studies were not favorable to religious beliefs. HENCE IT STARTED PERSECUTION OF NONBELIEVERS. THE ORTHODOX RELIGOIUS PEOPLE WERE AFRAID THAT THESE STUDIES MIGHT LEAD TO A LOSS OF BELIEFF IN THE ORIGINE OF THE WORLD AND IN THE CREATOR. THIS SORT OF ATTITUDE WAS ENOUGH TO PREVENT THE RISE OF GREAT INDEPENDENT THINKERS.

III) Need of scientific Method:

Scientific philosopher Ken Wilbar maintains that the scientific method is an experimental method of gaining knowledge, whereby hypotheses are tested (instrumentally or experimentally) by reference to experience (data) that is potentially public or open to repetition (conformation or refutation) by peers. Scientific method therefore applies to knowledge claims which can be experimentally confirmed refuted by others.

In this regard let us know the thoughts of Bertrand Russell, the profounder of 'logical atomism' He said, "It is, I maintain, from science rather than from ethics and religion that philosophy should draw its inspiration, because the ethical and religious motives in spite of the splendidly imaginative systems to which they have given rise have been on the whole a hindrance to the progress of philosophy."

For Russell, the opposition between a philosophy guided by scientific method and a philosophy dominated by religious and ethical beliefs may be illustrated by two notions which are very prevalent in the works of philosophers, namely the notion of the universe, and the notion of good and evil. A philosopher is expected to tell us something about the nature of the universe as a whole and to give grounds for either optimism or pessimism.

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1. Sir Thomas Arnold and Alfred Guillaume – Legacy of Islam, p. 34.

Philosophy, according to Russell is the science of the possible. The adoption of scientific method in philosophy compels us to abandon the hope of solving many of the more ambitions and humanly interesting problems of traditional philosophy.[1]

IV) Need for new language:

The complex ideas of modern science seem to have caused a complete inner crisis. The traditional proofs for the existence of God, the ontological arguments are the arguments from natural law and design are examined from a new stand point.

Able, courageous upright persons find it difficult to accept traditional beliefs. This is more the product of their intellectual integrity than of weakness of heart. Traditional views have lost their authority and their physiological justification.

Doubts about the conventional religions are not confined to the relatively few skeptics who had lost their faith, but they seem to have become the common property of a whole generation. The positivists' movement represents the scientific reaction against religion. Comte inaugurated the idea of positivism with his law of three stages of cultural developments.

1) Every primitive culture is theological, theology being, for Comte, another, name for superstition.

2) Metaphysics substitutes principle and forces for the ancient gods, and

3) Positivism which deals with scientific knowledge. Positivism demands that we remain within the bounds of experience.

Comte said on April 22, 1851, "I am convinced that before the year 1857 I shall be preaching positivism in Notre Dame as the only really complete religion.

According to logical positivism nothing can be true or even meaningful, unless it can be understood in terms of sense experience. In ancient Greek thought Pythagoras held this view and Plato criticized it.

Hume holds that there can be no true or meaningful assertions, about God, soul and immortality or objective moral standards. He discards belief about these as 'Sophistry' and 'illusion' for him only two types of statements had a meaning.

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1. Rusell Bertrand – A free man's worship and other essays, Unwin Paperbachs, London, 1917, p. 96.

1) Statements which are capable of being verified or falsified by empirical observation.

2) Statements of logic and mathematics which are about relation between facts.

Hume observes 'Run over your libraries and take up a book on divinity or school metaphysics and ask, 'does it contain any abstract reasoning concerning quantity or number? No – Does it contain any experimental reasoning concerning matters of fact and existence? No. Commit it then to the flame for it contains nothing but sophistry and illusion.'?

He, who asserts that there is a god, is neither making a false assertion nor making an assertion for which the evidence is inadequate. He is merely altering a form of words.

Kant rejects Hume's view in the Critique of Pure Reason. Kant affirms that the limits of sense experience are the limits of our knowledge about the world. Therefore, we cannot have a science of metaphysics. Nevertheless the world of experience is governed by laws which are partly the work of the understanding.

To Hume's doctrine of experience-modern logical positivists add the technique of linguistic analysis. The Vienna school presents a new logic, which attempts to draw a line between the meaningful and the meaningless and also exhibits in detail the structure of meaningful. The apparent meaningfulness of statements about God, soul and immortality are due to linguistic confusion. All forms of metaphysics are discarded as unprofitable enterprise and religious beliefs are dismissed as nonsense by which we allow ourselves to be deluded. Rudolf Carnap, one of the founder members of the Vienna Circle of Philosophy, wrote in 1930. 'Before the inexorable judgment of the new logic, all philosophy in the old sense, whether it is connected with Plato, Thomas Aquinas, or a new metaphysics of being or a philosophy of spirit proves itself to be not merely materially false as earlier critics maintained but logically unattainable and therefore meaningless.

As a corrective against revelations and mystic groping logical positivism and linguistic have done useful work. The truth experienced by an individual does not give an account of Reality. It's not a cognitive state. In the history of humanity convictions passionately held though not provable have produced holy wars and race conflicts the problem of superiority of one's own race or nation. Logical positivism and linguistic analysis have also been helpful to irradiate superstitions and dogmas in society based on religious beliefs.

One important thing we must note here is that if science were restricted to physical sensory domains, then mathematics and logic, could not be called scientific. A mathematical theorem is tested by the repeated application of logic by several mathematicians, not by material sensory experience. Mathematical testing is based on mental evidence, the inner experience of coherent train of logical propositions not on physical sensory evidence.

Faith and Reason

We now turn to faith which is stronger form of belief. Let us see whether it is inevitable in any field of thought?

Logical Positivism adopts the verification principle. A sentence can have factual meaning, only if it is capable of verification in sense experience. Religious propositions are not capable of such empirical verification and so do not possess any factual meaning.

In that case, if I ask is the soul immortal? I shall be told the question is meaningless, because the word 'soul' cannot be given a meaning by reference to anything observable. It is intended to refer to something held to be immaterial. Therefore, they will say, it can be meaningless. Its only reference can be, certain emotions which are associated with the sound of the word and arouses in us. The statement that the soul is a soul is not immortal are both equally meaningless. They cannot be either true or false because they are, in the literal sense non sensual.

Dr. S. Radhakrishnan[1] observes 'The principle of verification is not a self evidence statement, nor is it capable of verification by sense experience. It is not the statement of the same criterion of meaningfulness. Again it is not easy to draw the line between meaningful and meaningless statements.'

Universally accepted scientific principles are not capable of verification by sense experience. We do not deny laws of nature on that account. If we think deeply, we find that the revelation, we are said to have in religion is not different in kind from that which we have in science. We assume that scientific knowledge is the result of logical deduction and analysis of accumulated data; whereas religious Knowledge is one by revelation. Great scientific ideas arise more or less, like religious revelations.

Moses was long trouble by the problem of saving the children of Israel and suddenly had a revelation by the light in the burning bush. Gautama, the Buddha

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1. S. Radhakrishnan – Religion in changing world – Tinling and Co. Ltd., London, 1967, p. 73.

meditated and enquired for many years to know the nature of suffering and one day while sitting under a tree, he got his enlightenment.

Now let us see what happens in the case scientist. Archimedes leaps out from his bath-tub within a triumphant 'Eureka' having seen in a sudden flash the scientific principle which had long eluded him in his study. After hard and intellectual commitment to the problem, the scientist suddenly sees the answer by a revelation, as it were. The concepts which modern physics and mathematics use are directly verifiable in sense experience. They lead to deduction which can be related to experimental situation.

Of course science does not claim to deduce a moral code from the observation of natural phenomena. No scientific analysis can prove that he who bears false witness is doing something wrong.

The element of faith is inevitable in any field of thought. Without the adoption of working hypothesis our mind becomes helpless and dumb. Religious ideas are also tested, and judged by the lives and experiences of those who adopt them. There is an essential similarity of purpose in seeking truth. So science and religion need not to be in warring camps or separate watertight compartments. The conflict arises largely from ignorance of each others.

In short positivism helps to separate the nature and the purpose of a religion from magic, superstition and folklore with which it got confused. It also liberates us from religious obscurantism.

Dr. Radhakrishnan says at this point it should not become a scientific obscurantism which distorts science itself by imposing on it wrong idea of exactitude and verification.

Scientist Prigogine's remark is noteworthy. He says part of our suffering and our dogmatic behavior comes from a misinterpretation of human rationality.[1] Of course rationality has given human life its unique flavor. But it can lead to some strange behavior. Kant was obsessed by human rationality, and thought it had to follow the rationality of the planets. Classical rationalism leads easily to some idea of a superman, a kind of James Bond, who in every circumstance knows what to do. We have to live in and accept a pluralistic world with a limited rationality. This does not mean failure. Insects like ants have ecological success because each ant as a very limited rationality.

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1. *Weber Renee – The Search for Unity, Routledge and Kegan Paul, 1986, p. 194.*
2. Hudson W. Donald : Philosophical Approach to Religion, Macmillan Press Ltd. London, 1974, p. 14.

The logical structure of belief

Wittgenstein pointed out in his lectures on Religious belief (oxford 1966) that so far as empirical evidence for a religious belief in, say, the last judgment, is concerned it is logically possible.

A man should think that there are very strong grounds for believing that there will be last judgment at such and such date in future. Without this belief making any difference at all to anything else which he says or does.

Wittgenstein says 'In saying that God always cares for me when I am in need. I am expressing an attitude of trust in God. And trust is an integral aspect of any belief which can property be called religious.

The irreducible concepts of moral obligation and of physical objectivity are thus constitutive of morality and physical science respectively.[1]

Now the important question for our present purpose is, what concept, or set of concepts constitutes religious belief?

It is the concept of God. As the concept of moral obligation is implicit in all moral discourses and concept of physical object, in all sciences similarly concept of God or set of concepts are implicit in all discussions on religion in the widest sense.

Wittgenstein was interested in what constitutes the difference between religious beliefs and disbeliefs. Hence he used his example of Divine Judgment to illustrate this difference. He said in effect, that the difference between beliefs and disbeliefs is fundamentally a difference in what constitutes for them respectively explanation and experience. The difference between them is that they have what Wittgenstein calls 'different pictures'.

St. Paul on the road to Damascus was surprised by a strange light and a strange sound. Who art thou, Lord? He asked. Suppose he had asked instead what has gone wrong with my eyes and ears? He would have got a different kind of answer and had a different kind of experience. His question was loaded with the concept of God and the point is that this predetermined what the experience was for him and what it taught him.

Any form of social organism, may it be large or small, its central core of existence is belief. Take any member of the social organism. You will find, he proceeds to his own duty with a trust that the 'other members will simultaneously do their duties many

1. Hudson W. Donald : A Philosophical Approach to Religion, Macmillan Press Ltd. London, 1974, p. 14.

independent individuals come together, they live with co-operation, whatever may be the result achieved. But one thing is certain they exist together and work only because they have belief in one another and in what is immediately concerned. A government, an army - a commercial system, a ship, a college, an athletic team. There is after this, a transition from 'belief' to 'faith'. How does one pass from belief to faith?'

All exist on the precondition of faith, without which nothing is achieved and nothing is even attempted.

Willian James, one of the outstanding figures in the philosophical movement known as Pragmatism says 'there are cases where a fact cannot come at all unless a Preliminary faith exist in its coming. And where faith in a fact can help create the fact that would be an insane logic which should say that faith running ahead of scientific evidence is the lowest kind of immortality into which a thinking being can fall. Yet such is the logic by which our scientific absolutists pretend to regulate our lives:'[1]

It is argued that 'the religious teachings are outdated and useless in the scientific age. They are not at all relevant to the modern scientific conclusions. The different castes and creeds. The gradation of human beings as superior and inferior is the outcome of religious beliefs. Religion preached dogmatic rituals and outdated superstitions and customs. Religious preachers tried to make, men slave of their scriptures and spoke to people in complicated and mystical language. Thus religion exploited people.'

We have to differentiate between the trees of religion and the parasites of dogmas on them. Similarly we have to make difference between true preachers and practitioners of systematic religion and the hypocrites in the field of religion. I will not justify the dogmas or the unscientific conclusions of religion. But at the same time, we cannot overlook the positive content and rational aspects of religion.

The religion literature of any creed aimed at the betterment of people. It is a grand experimental to unite, men and unite them with the world beyond. To achieve this religious literature expected people to follow the achievement of some values and ideals in life. We find a grand synthesis of noble thoughts and practice in religious life. This brings a social harmony.

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1. William James – The will to believe, p. 364.

The Vedas, the Holy Koran or the Bible, the Dhammapada, teachings of Mahaveer or Basweshwar or Granthsaheb all these different religious books show us a common thread of human values and beliefs.

Secondly, religious teachings tell us that indulgence in vices is one of the major factors of deterioration of an individual or of family or society in general. To avoid this one has to control one's passions, abandon bad qualities and cultivate good qualities. Do we not see that the increase in selfishness, indulgence in drugs, destructive qualities and acts, corruption and violence are on the rise? If such situations continues for few more years what will happen? Here comes the importance of religious scriptures which tell you the way to discipline your mind and control the factors behind your action.

The religious literature is also rational. An appeal to the conscience is an important factor in the religious values. It is true there are few references where we find a caste has been glorified. But we need not make it a vital issue to condemn the truth behind allegories and parables. It will be an injustice. Thus to create a cultured mind we still need the help of a true religious faith.

Revelation and faith

Faith is a radical form of devotion, a belief in God, a complete trust in, and utter commitment to, the being who has so revealed himself. Aquinas constructs faith and revelation in the first sense. Paul Tillich interprets them in the second sense.

It is frequently asserted that although faith has often been understood in the first sense, whatever merits this view may have, we should not be misled into supposing that believing in is possible without believing that. Belief in a friend presupposes a belief that he exists, has such and such a character, and will respond in such and such a way. Similarly, a faithful response to the self-disclosure of God involves the belief that God is real, that he has disclosed himself that one is in relation to Him, and so on.

It is frequently argued that faith is morally objectionable because it involves holding beliefs that they are not adequately supported by evidence.

While the believer cannot provide reasons for his convictions which would convince the nonbeliever, his convictions are justified by an intimate acquaintance with the divine, which is the very heart of faith. It is not entirely clear that good reasons can be provided for accepting any religious authority of that intimate acquaintance with the divine is possible.

While explaining the nature of religious faith, Swami Vivekanand says 'Faith, faith and faith in us, is faith in God. If you have faith in all the three hundred and thirty millions of Hindu mythological gods, and in all the gods' westerners have introduced, and still have no faith in yourselves, there is no salvation for you. Have faith in yourselves, and stand up on that faith and be strong, that is what we need.'[1]

In reference to the religious fanaticism Swami Vivekanand observed, 'I do not understand how people declare themselves to be believers in God, and at the same time think that God handed over to a little group of men all trust and that they are the guardians of the rest of humanity. It is not religious belief. Religion is realization, but mere talk, mere trying to believe is nothing but grouping in darkness.'[2]

THUS ONLY BOOKISH KNOWLEDGE OF GOD OR HIS POWERS OF MERE TRYING TO BELIEVE IS NOT THE FIRM FOUNDATION OF RELIGIOUS BELIEF BUT THE REVELATION IS IMPORTANT. THE JOURNEY STARTS IN SELF CONFIDENCE, FAITH IN OURSELVES, LEADS TO FAITH IN GOD

Concept of God

What concept or set of concepts constitute religious belief?

One is the concept of God. When we think about God, we come across many beliefs. These beliefs depend on the varieties of religious traditions. Beginning with the negative end of the scale, we ask.

1) Atheism is the belief that there is no God.

2) Secondly agnosticism, which means we cannot have knowledge of ultimate thing. It is the belief that we do not have sufficient reason either to affirm or to deny God's existence.

3) Third is skepticism. It simply means doubting every assertion.

4) Naturalism is the theory that every aspect of human experience, including man's moral and religious life can be described and accounted for in empirical terms. Now let us move to the positive side of the scale.

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1. Selections from Swami Vivekanand, p. 206.
2. Selections from Swami Vivekanand, p. 356.

1) Deism can refer either to the idea of an absentee God who long ago set the universe in motion and has thereafter left in alone.

2) Theism is a term which is often used as a synonym for monotheism. This is a form of belief in a deity, but is generally used to mean belief in a personal God.

3) Polytheism is the belief in a multitude of Gods.

4) Pantheism is the belief that God is identical with nature or with the world as a whole.

5) Monotheism is the belief that there is but one Supreme Being who is personal, and is moral in nature.

By 'God' I mean the divine power as is conceived in given religion. God is invariably conceived as conscious and active in ways which are transcendental. God is conceived in many different forms within religious belief as a whole and even at different stages of development, within a given religious tradition. When I say God is conscious I mean God participates in our understanding. He can be communion with us. God is also conceived to be active, transcendent being and existing beyond the range of sense perception or having a supernatural character.

Now let us discuss the main routes to God and also the Christian concept of God and the concept of God in Indian culture reflected through the teachings of different Indian saints and thinkers. Mainly we will consider those who claim to have God realization.

There are three main routes to God, reason, revelation and religious experiences.

Both Plato and Aristotle claimed that reason can obtain certain knowledge of God's existence and nature.

Aquinas affirmed that in addition to a natural knowledge of God, there is a super natural knowledge revealed by Christ and received through faith. Aquinas held that the idea creation does not necessarily rule out the possibility that the created universe may be eternal. It is, he thought, conceivable that God has been creative since eternity so that although his universe has a created and dependent status, it is nevertheless without a beginning. On this ground Aquinas rejected the idea of an eternal creation.[1]

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1. Hick John – Philosophy of Religion, Prentice Hall, England, 1963, P 80.

Christian concept of God

We may now consider the Judaic Christian concept of God. God is conceived as the infinite eternal, uncreated personal reality that has revealed himself to his human creation as a holy and loving God as creator.

God is conceived Judaic Christian tradition as the infinite-self existent creator of everything (that exists other than himself). This creation means creation out of nothing, ex-nihilo, the summoning of a universe into existence. Before that there was only God.

What are the scientific implications of this idea? Does it mean that the creation of the physical universe took place at some specific moments in the far distant past?

A different and possibly more fruitful approach is suggested by Augustine's thought that creation did not take place in time. It is itself an aspect of the created world. From this point of view the universe cannot be said to have had a beginning in time. In this case it is also possible to speculate concerning the initial state of the universe. However, the theories developed by some of the physicists on this point are not to be identified with the religious faith that things depend for their existence upon the creative art of God. This faith does not entail the correctness of any particular cosmological theory although some, such as that of the singular origin of the universe, without the Judaic - Christian doctrine of creation a certain degree of external support.

Another way of answering the question 'Is it the case that God really exists? Would be this. An attempt is made to reduce the concept of the existence of God to the concept of the existence of something else whose existence is not problematic.

Professor D. Z. Phillips, for instance seems to think that the question of God's real existence settled by the fact that he calls eternal love is possible. By eternal love he means 'love which, to quote his own definition, "is not dependent on how things go, cannot change and cannot suffer defeat."Phillips writes – seeing that there is a god – is synonymous with seeing the possibility of eternal love.'

Whether any created intellect can see the essence of God?

One may say that no one had seen God at any time not even prophets only, but neither angels nor arch angles have seen God. For how can a creature see what is not creature see what is not creatable?

Thomas Aquinas's answer is that: Since everything is knowledgeable according as it is in fact, God, who is pure act without any admixture of potency is in him supremely knowable.

But what is supremely knowable in itself, is not knowable to some other intellect on account of the excess of the intelligible object above the intellect as, for example, the sun which is supremely visible, cannot be seen by the bat by reason of its excess of light.

Therefore some who considered this held that no created intellect can see the essence of God. This opinion however is not tenable. For as the ultimate happiness' of man consist in the use of his highest function, which is the operation of the intellect the created intellect could never see God. It would either never attain to happiness or its happiness would consist in something else besides God, which is opposed to faith.

For the ultimate perfection of the rational creature to be found in that which is the principle of its being? Since a thing is perfect in so far as it attains to its principle. Further the same opinion is also against reason. For their resides in every man a natural desire to know the cause of any effect. Which he sees and from this wonder arises in men. But if the rational creature could not desire would remain void.

Hence it must be absolutely granted that he blessed see the essence of God.[1]

Eastern concept of God

To study eastern concept of God one has to examine many mystics and philosophers in Hinduism. So one has to consider what these people experienced or thought as God. I shall state the views of Swami Dayanand, Vivekanand, Ravindranath Tagore, Gandhi, Raman Maharshi, Savarkar, Gurudev Ranade, J. Krishnamurti.

1) Swami Dayanand made difference between God and Brahman. His explanation was based on Vedas. Brahman has no birth nor materializes as 'Avatar'. He manifests the dormant universe. He is the first cause of the creation of the universe.

2) Ravindranath Tagore thought realization of God is the way to know him. Intellect or logic cannot prove his existence. As we experience light, we feel light. Similarly God is felt. For Tagore whole universe is full with chaos but beyond that finite universe, we realize there is an order. Our experience of beauty leads us from finite to infinite and permanent universe.

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1. Thomas Aquinas – The Summa Theologica Vol. I Encyclopedia Britanica, P. 50.

3) Gandhi holds that intellect cannot have vision of God. When you consider rationally as supreme you create a monster of reason. Pure intellect is possible. Impure intellect can be purified with the help of faith. Love is God. Heart can feel it, so there is need to replace intellect by heart means reason should be replaced by love.

4) Raman Maharshi was asked by a science student 'While finding the ultimate truth behind this universe scientist experiences a blank wall of ignorance. What is the reason?' Raman Maharshi was explained that the only study of outer world or material world is indirect. It is not true, it is relative. By asking who I am one must go beyond body-mind.[1]

5) V. D. Savarkar said if you consider the ultimate principle which holds the universe and the creative force in the universe.

6) Gurudev Ranade, felt that the experience of God cannot be expressed in words. Mysticism means the state of equilibrium of mystic. He does not speak. Communication with God is without the medium of words. The experiences of mystics should be considered as a hypothesis and the path of practice is an experience and by experience of practitioner one has to examine the hypothesis. When one experiences the union with supreme consciousness it is like water in two nearby lakes upsurges and mixes with each other that is what happens with God and devotee.

7) J. Krishnamurthi – avoided to use the word God. Truth is beyond time. Only be aware. The observer is observed. Duality vanishes. What thought has invented is not God. If it is invented by thought, it is still within the field of time, within the field of the material. Thought knows its limitations. Therefore it tries to invent the timeless which it calls God. So we must go into the knowing of thought and not of God.

8) Swami Vivekanand defined God as an infinite circle whose circumference is nowhere, but whose center is very where.[2]

The idea of personal God, the Ruler of nature, and creator of this universe, is not the end of vedantic idea; it is only the beginning. The idea grows and grows until the vedantists finds that He who, he thought, was standing outside, is he himself, and is in

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1. 1 to 7. Gosavi M. S. and Inamdar H. Y. – Adhunik Bharatiya Tatvadnya, Gokhale Education Society, Nasik, Feb, 1990.

2. Vivekanand Swami – Selections from Swamin Vivekanand, Advaita Ashram Mayavati, 1944, p. 78, 114, 115.
Krishnamurthi J. – Tradition and Revolutions (Orient Longman), Sangam Books, 1982, p. 245.

reality within. He is the one who is free, but who through limitation thought he was bound.

Operative meaning of 'God exists'

Religious man believes God is great and He knows what is good and proper, so religious man desires to surrender himself to God's will. It is believed that a God fearing man is honest, even in the dark. Here one may ask why he should be honest when it does not profit him.

An atheist might say "Why, he ought to be honest because that is his duty." If we ask "Why should he do his duty," the atheist might answer "Because that is exactly what duty means." The God fearing man might simplify the whole thing by saying "Be honest, even in the dark because God sees you." These are many such conceptions, acts of behavior and attitudes which flow from and can be organized under a very comprehensive human response. 'God exists'

Just as the concept of matter organizes a number of physical properties and law of nature, the assent to the sentence 'God exists' organizes a set of values, attitudes and experiences. When one says God exists one really means that a certain way of living is valid. The term valid in this context would mean acceptable, satisfying. There is no point in saying 'God exists' unless one commits oneself to a certain pattern of living. Gandhiji used to say that a science atheist was really a believer in God.

When one sincerely says 'God exists' one prepares to live in such a way as life unquestionably has a meaning and when one realizes God, one has actually found that meaning. Swami Vivekanand has said "God certainly does exist otherwise what life is for, what is it worth?"[1] One can paraphrase this as "If God did not exist, life would not be worth living. But life is worth living, therefore God exist." One may suggest that this should not be taken as a rational proof of existence of the deity. For this there is no theoretical way of substantiating the minor promise. You can upload it by living life in a certain way.

When Saint Dnyaneshwar prayed that let there be an abundance of persons adhering to the belief in God (ई□वरनि□ठांची मांदियाळी) he did not ask for ask for a large number of people giving an intellectual assent to the statement 'God exists'. He was rather praying that a society of a certain type of men should come into being. It is the

1. Christopher Isherwood – Ramkrishna and his disciples, p. 212.

function of the philosophy of religion to spell out what this type of man is like. Thus we find that the sentence 'God exists' has more an operative meaning that a declarative one.[1]

Knowledge of God through religious experiences

It is very difficult, perhaps, impossible to give a definition of God that will cover all the usage of the world and of equivalent worlds in other languages. Even to define God generally as a super human or super natural being that controls the world in adequate.

Religious philosophers from Plato onward have claimed that it is possible to have a direct knowledge of divine reality. Among Christian thinkers, some hold that this knowledge is available to everyone. Some regard it as the highest activity of ordinary mental powers; others assign it to a special faculty of the soul. Some describes it intellectually as an insight or intuition. Thus we become aware of God as eternal and holy through the contingency of finite things and moral law.

But there is also an immediate, purely spiritual experience that is called mystical. No doubt there are certain standard methods of training and meditation which tend to produce mystical experiences. These have been elaborated to some extent by certain western mystics and to a very much greater extent by Eastern Yogis.

Founders of religious and saints, claim to have been in direct contact with God, to have seen and spoken with him and so on. An ordinary religious man would certainly not make any such claim. Perhaps he might say that he had experience which assured him of the existence and presence of God. So the first thing we notice is that capacity for religious experience is in certain respects like an ear for music.

The tradition affects the theoretical interpretation experiences which would have taken place even if the mystic had been brought up in a different tradition. A feeling of unity with the rest of the universe will be interpreted very differently by a Christian who traditionally believes in a personal God, and by a Hindu mystic who has been trained in quite a different metaphysical tradition. Catholic mystic may have vision of virgin and the saints, while protestant mystic will not have such experiences. Thus the relation between the experiences and the traditional beliefs are highly complex.

C.D. Broad says, 'I think that there is only one important point on which there is conflict. Nearly all mystics seem to be agreed that time and change and unchanging

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1. Dixit S. H. – The Doctrine of God (Seminar Proceedings), 1970, Belgaum, p. 2011.

duration are unreal or extremely superficial whilst these seem to explain men to be the most fundamental features of the world But we must admit, on the one hand that that these temporal characteristics present very great philosophical difficulties and puzzles when we reflect upon them, on the other hand we may well suppose that the mystic finds it impossible to state clearly in ordinary language what it is that the experiences about the facts which underlie the appearance of time and change duration.'

Capt. Edgar D. Michell, astronaut, was the sixth man to walk on the moon. He was caption of Apollo 10, 14 and 16th space programmed of NASA. I met him in the world conference on Yoga and Science held in May 1977 in India.

In his public speech and interview he narrated his personal experience which has a great similarity with mystical experience or religious feeling. Capt. Michell spent 35 years of his life I scientific research. He said.

"While returning back to Earth, we were relaxed and in a very happy mood. I looked down towards our planet Earth. A bluish white planet, bigger than we see the moon. On jet-black background the bluish; Earth brought some unknown feeling of unique Euphoria: Feeling of peace, joy and love over shadowed my whole personality. It was a mysterious change in my emotional world. The very moment a thought came in my mind that scientists and spiritualists may be the persons who are travelling towards the same truth." Capt. Edgar D. Michell summed up as saying "Indian sages had said many years ago,

God sleeps in the planets.
awakes in the flowers.
walks in the animals and
thinks in the man."

THUS WE COME TO THE CONCLUSION THAT A MAMN DEVELOPED IN RELIGIOUS BELIEF AND A MAN DEVELOPED IN SCIENTIFIC KNOWEDGE BOTH CAN EXPERIENCE THE CHANGE IN THEIR PERSONALITY, CHANGEB IN EMOTIONAL WORLD WHICH CAN BE CALLED MYSTERIOUS IN NATURE.

4. PSYCOLOGICAL STUDIES OF RELIGION

E. D. Starbuk wrote in his book, The Psychology of religion (1899) a century ago that science has conquered one field after another until it is now entering the most complex, the most inaccessible and of all, the most sacred domain, that of religion.

Schaub (1926) noted that the twentieth century brought a new approach to the study of empirical and scientific lines.

The society for the scientific study of Religion began the publication of its journal in 1961. That, and the 'Review of Religious Research (1959, Vol. 1) mark a new period of growth.' An emphasis was given in making the study of co-operation between all the intellectual disciplines concerned with the dynamics of modern culture. It was decided to use the scientific disciplines in the study of Religion everyone. The editor of the journal for the scientific study of Religion wrote in the first issue that 'Studies and appraisals of religious experience, mystical and other forms of religious beliefs, practices, organizations and purposes from the point of view of psychology do increase in number each year. Even social psychology continued to publish empirical work on psychology of Religion. Psychology of religion depends on the procedures and scales that measure religiosity. Sometimes religiosity is known as religious attitude or religionist.'

Robinson and Shaver (1973) first time presented seventeen and Shaw and Wright (1967) presented seven such scales to measure religiosity.

Gorsuch (1984) in the first paper on the psychology of religion argues that these models of measurement offer a paradigm for studies of religion.

What is Religiosity?

What is this 'religion' beyond the wide ranging beliefs and prescriptions of different religion that we recognize?

Although the Shorter Oxford English Dictionary holds the etymology of religion to be relegate to bind. Its definitions refer to a unitize response through activities like prayer, metaphysical meaning and group dependence. Webster's Dictionary (1934) derives religion from 'relegate' to hold back, bind fast. Ducasse (1953) noted that 'cicero traced the word' religion to relegate, meaning 'to read over again, rehearse while Webster identified nine uses of 'religion'. He also notes that religion is used rather narrowly, and even prescriptively. Leuba (1912) could collect 48 definitions of religion to which

Dicasse (1953) later, added some more, with their typical 'kinds of biases. This implies that definitions are formed to emphasize whatever suits a particular purpose.'

The High Court of Australia's ruling on 27th October 1983 found that not only does the law protect and defend religion, but protects the religious beliefs, which are within the area of legal immunity and gives freedom to the religious believers to follow them.

The search for definitions of religion can proceed almost indefinitely but some sense of otherness and transcendence seems essential simply because religions are concerned with 'the last things'.

From this point of view Thousless defined religion as a felt practical relationship with what is believed in as a superhuman being or beings. Bowker therefore suggested a felt practical relationship with what is believed to be transcendental.

More recently Luckamanns, following Durkheim's recognition of religion as a social fact, equated religion with 'symbolic self transcendence' for Berger 'religion is the human enterprise by which a sacred cosmos is established.'

These definitions all recognize the sacred quality of some mysterious and awesome power that is beyond man and yet related to him and carries potent social, implications. Argyle and Beit – Hallahmi's definition of religion as a system of belief in a divine or superhuman power and practices of worship or other rituals directed to that power is also to be noted.

For modern psychology the above definitions leave open the question of religion as a state of mind, which directs the ways we express our beliefs and control the doctrines that can properly be held.

Now we will consider the modern concept of dimensions of religious belief.

Dimensions of Religious Beliefs:

One of the modern psychological conclusions regarding religion is that religion involves other dimensions of response which have been distinguished conceptually rather than empirically – Religious myth which include knowledge and religious belief, ritual or behavior experiences and effects of religiosity are recognized by psychologists like Capps.

Previously one would have asked which religion you follow. But now modern psychologists like Clayton and Gladden ask if religion is 5 D or 1? Religions are not just systems of belief they are also organizations or parts of organizations. They have a communal and social significance. Clayton and Gladden (1969) who questioned the assertion that religion is multidimensional, produced scales to measure five basic dimensions. A factor analysis of the response to their scales led them to conclude that religiosity involves a single dimension. While Glock and Stark had conceded that religious belief is central to a multi-dimensional conception of religion. Clayton and Gladden identified belief with religion itself, because the other aspects are referred to it.

If we accept that religion is predominantly concerned with belief in God, we find in Christianity, a hierarchical ordering both vertical (God is up there) and horizontal (because we are the body of Christ).

The sentence in Bible 'the kingdom of the Lord is within you' was changed in translations as the 'kingdom of God is within your grasp'.

Here we find that those who are socially conscious will prefer to interpret it as the kingdom of God is among you. Those who feel that psychological metaphors express the profoundest truths will prefer 'within'.

In the Gospel of Thomas it is said 'the kingdom of God is inside and it is outside you.'

THUS WE CONCLUDE THAT RELIGOSITY HAS ONE DIMENSION WHILE RELIGIOUS BELIEFS ARE MULTIDIMENSIONALS AND RELIGION INVOLVES OTHER DIMENSIONS OF RESPONSE.

Concept of God from psychological point of view:

Harms (1944) examined children's concept of God through the drawings they produced, and he structured those drawings into a sequence of developmental stages from fairy tales to abstract formulations. This method itself implies that God can be correctly , represented and so it is only older children who might have the social skill to refuse that task, or say, when they are asked, that they were being metaphysical or schematic in whatever they produced.

Dr. Freud's hypothesis was that God is really the father, clothed in the grandeur in which he once appeared to the small child. Nelson (1971) tested Dr. Freud's hypothesis. He compared descriptive concept of God, Jesus, mother and father and found that

concepts of the mother were more similar to the concept of God than were concepts of the father.

New psychological study of Gorsuch concluded that three factors have been firmly established for the concept of God that cover oneness, distinctness and wrathfulness and that these separate factors provide a firm base for more detailed comparative studies. This analysis also suggests that to align God concepts with parental figures is an over-simplification that neglects the traditional formulations held, for example, by liberal and by fundamentalist Christian groups.

Vergote and Tamayo (1980) reached similar conclusions from a slightly different starting point in which they had their subjects make semantic rating on 18 maternal and 18 paternal items (e.g. warmth, tenderness, strength and power). Each was rated first, for its symbolic and remembered relevance to 'mother' and 'father'. The significant difference originally found in Holland were validated across other western cultures in Belgium, France, Italy and the United States when these words were applied to God as well as to the parents, paternal items that defined God involved power and strength, knowledge and justice where as the natural father was associated with action and initiative. The maternal items that represented God 'express unconditional love'.

The broad conclusions were that the father figure is more strongly maternal than the mother figure is paternal. Likewise the maternal component is also of more importance in God than the paternal one and produces smaller distances between the figures than the paternal one, although father figure is a more adequate symbol for God than the mother figure. Paternal items like law giver and judge, powerful and firm, patient and loving, just but not stern, structure the paternal figure of God.

A study among Hindus that was part of Vergote's cross cultural extension of work emphasized the traditional basis for these representations. Parent figure did not meditate the representation of God among the Hindus and the divine law that arches over the society is not in the hands of father. Moreover the absence of an affective bond with God obviously manifests much less dependence on maternal meditation. Vergote concludes that from the psychological point of view, the divine name of father is motivated by a complex mode of relation already psychologically constituted. Nevertheless, the transfer to God of the name of father responds to the invocation of religious language supports the established concepts that are held by men of religious believers.[1]

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1. Brown L. B. – Psychology of Religious belief, Academic Press, 1987, Australia.

Continuation in belief:

The early theorists were ambitions in trying to explain why religious beliefs are held at all and how they might have developed originally. Later views looked at the integrative effects of religion and at the social co-relates of religiousness in terms of sex, age, class or orientation. Those analyses assume that religious believers share some characteristics because they are grouped coherently, although they are not all equally committed religious concepts are interpreted in many ways and there are doubters. William James insisted that they should be identified by their fruits. Sometimes we may get negative answer to a question like 'do you believe in God'?

Such questions are not to be avoided. From primitive man to the man in the last decade of twentieth century, we find that people believe in supernatural, the concept of God. There is continuity in this sort of belief. This belief stands through the most difficult test of time. Greelay[1] argued for the necessity of religion from the popularity and wide acceptance of religious beliefs and he asked 'why religion has persisted in the masses when some of the elite have been fit to reject it.'

Social background influences the responses shown by the fact that more men, and the younger mind and better educated people opted for no religion in the census. Verman compared the characteristics of those with no religion and those who can be termed as non-religious or skeptical or agnostic, atheistic, neutral or even hostile to religion. Each of those terms involves more than a mere disbelief in religion. Allport and Ross identified a group that is proreligion neglecting those who are anti-religious. Verman's data concludes that 25.9 percent of his samples of people with no religious affiliation accepted belief in God with at least some uncertainly and another 25.9 percent nevertheless agreed that they were in the presence of God.

We must therefore distinguish those with no religious affiliation from those who actively disbelieved. Verman's review of the literature led him to conclude that those who are not religiously affiliated do not differ from those who are so affiliated in their social behavior, prejudices, need for security, feeling of anxiety and mental adjustment.

One person who had not attended church is reported to have said 'I define religion not, in terms of belief but in terms of concern for search of values for one's own integrity.'

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2. Greelay A. M. (1972) The Denominational Society, A Sociological Approach to the Religion in America, p. 8.

For me the equivalents for love of God are reverence for life. Others are quoted as saying 'I set an example for my children. You do not lose by going to temples; you meet good people at church. Those who do not go to the church or temple will say it is not worthwhile; it is waste of time or unrewarding. Reasons like that are still being offered. Bender advocates the concept of religious impulse than of religious belief. Mol's (1971) Australian survey of religion showed consistent difference between regular attendance of Anglican, Catholic, Methodist and Presbyterian churches in terms of their frequency of praying. 55 percent of the regulars said they prayed daily, compared with 20 percents of the irregulars a feeling of being in God's presence or these responses all support the need to maintain a broad perspective on the way religion is expressed.'

Typically we believe without being able to supply many reasons for our beliefs, which have become customary or habitual, some of them going well beyond or against any evidence. So Wittgenstein said of religion that if there were evidence this would in fact destroy the whole business. To say I believe, is not a decision to do anything and thus each of us is the final authority on what we believe.

Belief or disbelief about God forms the core of religion. The Gallup Poll International continues to ask national samples about that particular belief. In 1949-95 percent in Australia said 'Yes' to the question 'Do you believe in God?' By 1969 this percentage had dropped to 87 percent and in 1983 to 79 percent there was similar drop in United Kingdom from 84 percent to 77 percent to 70 percent. In France it went from 66 percent to 73 percent and then to 62 percent. The 1969 Australian study showed that 83 percent of men but 93 percent of women expressed a belief in God, with a similar difference for belief, in heaven (57 percent of men and 72 percent of women). Life after death (41 percent and 53 percent) hell (31 percent and 30 percent) and in the devil (30 percent and 37 percent).

These expressed beliefs show that a belief in God does not necessarily entail a belief in heaven and even loss in hell or an afterlife. The expressed believers show less consistency in religious doctrines.

A study of Osarchuk and Tatz (1973) support the theory that fear of death is basis for religious beliefs.

Not only are religious beliefs widely distributed they appear to serve purposes beyond guiding people's lives, including wish fulfillment, hope, fantasy and focusing

social relationship and interactions. Early psychologists were directly interested in it and sociologists have found religion a good tool with which to explore social processes.

It is also true that many interpretations of religion faced difficulty I gathering systematic data because of prejudices among religious believers against the empirical study of religion.

Religious beliefs are widespread. They are well protected and not expressed when it is thought they might be disapproved. Another important conclusion of this psychological study of belief in Australia supports the finding that those who are religious express a greater sense of well being.[1]

And what does science aim at? A well being of man. This shows that science and religion need not come in conflict with each other on the contrary man can be religious and still respect science. At the same time a scientist can experiment and still can remain religious. Thus satisfaction in life or a griefless death can be assumed more by religion than by science.

We must note that psychologists have been unable to specify the grounds on which authentic and intrinsic religious experiences are based. Thus philosophical psychology was given back to the philosophers.

Stories about the lives of legendary religious figures nevertheless testify to the existential validity that can be found in religion, which is more readily revealed by autobiography than in detached psychological studies.

Modern psychological conclusions have kept close to commonsense and while it is only occasionally that the findings are counter intuitive and based on experimentally controlled studies. They have shown that prior experience or knowledge of a religious tradition overwhelms most of the other effects on the data. In one sense each person seems to create his own religion and in another sense persons react to what is made available to them.

1.L. B. Brown – The Psychology of Religious Belief, Academic Press, 1971, p. 171.

5. SCIENCE AND RELIGION

The first part of this thesis is devoted to the study of religious belief, its need, its difficulties, its relation with reason, the concept of God and the mystic experience etc. All these are topics in the philosophy of religion. I have also tried to show the relevance of the conclusions of modern psychology to religion.

I now turn to the other branches of empirical science. I shall first consider some ideas developed in physics and Astro-physics, such as the expand ding universe, the big-bang theory, space-time, matter-energy etc. I shall see if they take us any length towards religion and what the mystics have to say. If these ideas do not lead us towards religion, I have to consider whether they are, at least compatible with religion, may be one finds them, at long last, complementary to religion. Later I shall turn to the Biological sciences.

Science stands and falls with the empirical method. This involves formulating one's hypothesis, subjecting it to experiment via carefully collected data. This data will verify or falsify the hypothesis, in order to draw conclusions that will become a theory or perhaps even a law. Equations such as $E=MC^2$ are the symbols that carry the message of science and mathematics becomes a language of the message.

Science is interplay between the concrete details and abstract reasoning, between the inductive and the deductive way-between the senses that register the data and the abstracting mind that orders it into patterns of relationship. Of course science is a highly sophisticated structure, too complex to be described in this way.

It will be very useful to study the ideas and opinions of great modern scientists like David Bohm, Rupert Sheldrake, Noble Prize winner Illy Prigonnine, Stephen Hawking, Raja Ramanna, and Jayant Narlikar.

My reason to choose these scientists is to present pros and cons regarding scientific conclusions and their relevance to religion. In later pages I shall show that though all these modern scientists are not religious their conclusions reveal a picture that is positive in nature.

We have already seen that scientific theories are tested by empirical observation i.e. in experience. They are corroborated when men find observable predictions deduced from them to be commonly and recurrently verified and discredited when they find such predictions falsified. The objectivity of scientific knowledge derives from this appeal to common and recurrent experience. To give an example we can say that if a man with

normal sight looked through the advanced telescope and if the telescope is focused in the right direction, he is bound to see Neptune. The question which is often asked is can religious beliefs similarly be put to the test of experience? The religionist claims that it can be.

Before the argument commences one can ask a counter question:

(1) When a scientist talks about an atom can anybody see it with the senses?
(2) Can the existence of virus be proved?
(3) When you say that water is hot actually what is measured is the change in temperature and not the heat.

Here we find that while explaining scientific conclusions, we talk about many things which cannot be perceived by our senses but can be proved by their results. You say that a particular patient is ill because of some unknown virus. You say there is electricity but you can prove its existence only in form of light, heat etc.

Similarly religious experiences whether they are valid or not can be seen from their results.

To see Neptune, we require a telescope set in a particular direction and definite period of time of day or night. Similarly regarding religious experience one needs preparation of particular order.

Now let us see the confident prediction of the Hebrew law giver –

If, thou shalt seek the Lord thy God, thou shalt find him, if thou sleekest him with all thy heart and with all thy soul. When thou art in tribulation and all these things are came upon thee….. If thou turn to the Lord thy God, he will not forsake thee.

Here is a belief in God and, deduced from it, a forecast concerning human experience. One may link this kind of forecast to the predictions which scientist makes in order to test their theories. Here I want to consider religious experience in a wider context. We are seeking empirical experience for God's existence. Does anything called religious experience provide it?

It cannot be disputed that religious experience occurs; if by religious experience is meant either: 1) ordinary experience according to the religious predictions made. 2) Experience with a peculiar religious feeling. St. Paul's prediction was fulfilled during the storm of the sea. There shall be no loss of any man's life among you, but of the ship…..for I believe God that it shall be even as it was told me (Act 27:22:25). This

example illustrates the former meaning. Now the question which has to be answered is: does religious experience, in either sense, provide logically adequate grounds for asserting that God exists objectively?

If God is defines to any degree transcendent and if 'transcendent' here means 'lying beyond human experiences' then necessarily the answer in negative. For in such case, no premises solely concerning human experience could (logically) prove his existence. It is logically impossible to experience that which by definition lies beyond experience. If however by transcendent is meant having the greatest degree of goodness, a supreme value - even of mystery - of which we can conceive, then human experience could conceivably justify our calling God, in this sense transcendent.

Here it can be objected that there is a logical gap between religious experience and the belief of God exists objectively. To illustrate the nature of this logical gap let us consider briefly the relationship between statements concerning sense experience and statements concerning physical objects –

e.g. A: There is a table in the next room.
B: How do you know?
C: Because I have seen it.

A's claim to knowledge concerns a physical object namely a table. The reason given for making it, however, concerns only sense experience namely A's experience of seeing. Now a statement about sense experience has no tendency to prove the existence of an object such that one could say, 'If this physical object exists or has such and such properties, then these sense experiences do not occur, or alternatively', 'If these sense experiences do not occur, then the physical object does not exist or does not have these properties.'

Two points emerge here (1) An assertion about a physical object can never be logically reduced to an assertion, about sense experience. (2) It is always logically possible to introduce a hypothesis to save the physical object statement from conclusive confirmation or refutation by the empirical evidence, when scientist express their conclusions they are all physical object statements. So they are subject to logical limitations.

W. Donald Hudson says 'the attempt to establish the existence of God in the way that scientific hypothesis are corroborated by empirical evidence does not succeed. The problem of objectivity is not to be solved by an appeal to religious experience, but from moral judgments it can be inferred that God exist.'

Science as a challenge to religious beliefs

The tremendous expansion of scientific knowledge in modern times has a profound influence on religious belief. There are disputes in some fields of science and religion. There are claims and counter claims of science and religious knowledge.

Since Renaissance, scientific information about nature and universe has steadily expanded, especially in the fields such as astronomy, astrophysics, physics, chemistry, zoology. Those which are subjected to direct observation and experiment were thought as rational and valid and which were not discarded.

Advancing knowledge has made it possible and necessary to distinguish between the religious records of revelation and the primitive view of nature which formed the framework of the thinking of early man. Accordingly we find that the three storied universe of Biblical cosmology, with heaven in the sky above our heads, hell in the ground beneath our feet and the sun circling the earth but halting in its course of Joshua's command, is no longer credible in the light of modern scientific knowledge. That the world has created some 6000 years ago and that man and the other animal species came into being at that time in their present forms can no longer be regarded as a reasonable belief.

In Islam, there is an expectation that at some future date the decomposed corpses of people, generation after generation will rise from the graves. The bodies will rise in good health for the last judgment.

Hinduism is not free from superstitions though many of the religious superstitions have now been faded away. The process was not easy. Initially there was tremendous resistance often with great vehemence and passion. The scientific evidence was however against the dogmatic beliefs. So for some time science came under fire. Some people consider that science has not specifically disproved the claims of religion. It has explained many things which were formerly within the field of religious dogma, so much so that faith can now be regarded only as a harmless private fantasy. But this argument is not correct.

Now, regarding cosmology, modern science deals with the expanding universe. The new models of the universe can be studies without any reference to God. The universe investigated by empirical sciences proceeds exactly as though no God exists.

Does it follow from that there is indeed, no God?

It all depends on the concept of God that we entertain. If belief in the reality of God is associated with cultural presuppositions in prehistoric period, then of course, it is not valid. But if we suppose God has created the universe and has given sufficient autonomy to man then even accepting the autonomy of nature, there could be some proof of cosmic intelligence in the universe in and then God become relevant in this age of science. Sciences are exploring the order out of chaos, the self organizing nature, institution as source of true knowledge and these fields of science offer no contradiction to religious faith.

Science can neither confirm nor deny the claim of religious belief That God has created this universe.

In the case of miracles referred to in religious scriptures science has to say something. If miracle is defined as a breach of natural law, science has to say there are no miracles. Of course it does not mean that there are no unusual and striking events which are interpreted as mercy of God for example, the stories of saints healing people. It is not scientifically impossible that unusual and striking events of this kind could occur.

In the words of John Hick 'Events which have religious significance that evoked and mediated a vivid sense of the presence and activity of God may have occurred even though their continuity with the general course of nature cannot be traced in our present very limited state of knowledge.'[1]

Tower of tortoise crumbles

Religious beliefs have created the world picture where an infinite tower of tortoise supports the flat earth or the earth rests on the hood of a serpent. These theories lack observational evidence: no one has seen a giant tortoise or a serpent with the earth on its hood, but then no one has seen a superstring either. However, the tortoise theory fails to be good scientific theory because it predicts that people should be able to fall off the age of the world. This has not been found to agree with scientific conclusions.

In earlier pages we have seen that the earliest theoretical attempts to describe and explain the universe involved the idea that that events and natural phenomena were controlled by spirits having human emotions who acted in very human like and unpredictable manner. These spirits inhabited natural objects, like the sun and moon.

1. Hick John – Philosophy of Religion of Religion, Prentice Hall 1 NC, 1963, p. 39.

There was an effort to get their favors in order to ensure that fertility of the soil and the rotation of the seasons. The sun and the moon and the planets might still be gods but science said they were gods who obeyed strict law apparently without any exception, if one discount stories like that of the sun stopping for Joshua.

At first these regularities and laws were obvious only in astronomy and a few other situations. However, as civilization developed and particularly in the last 300 years, more and more regularities and laws were discovered. The success of these laws led Laplace at the beginning of the nineteenth century to postulate scientific determinism that is; he suggested that there would be a set of laws that would determine the evolution of the universe precisely, given its configuration at one time.

It is argued that Laplace's determination was incomplete in two ways. It did not say how the laws should be chosen and it did not specify the initial configuration of the universe. These were left to God. God would choose how the universe began and what laws it obeyed, but he would not intervene in the universe once it had started. In effect, God was confined to the areas that nineteenth century science did not understand. So long as the universe had beginning, science could suppose it had a creator, but if the universe is really and completely self-contained, having no boundary or edge, it would have neither beginning nor end. Thus scientific conclusions put a question before religion 'What place, then remains for the creator? The universe is not affected by anything outside itself. It would neither be created nor destroyed. It would just be.'

Einstein once asked the question, 'How much choice did God have in constructing the universe?' If no boundary proposal is correct, He had no freedom at all to choose initial conditions. He would of course, still have the freedom to choose the laws that the universe obeyed.

Even if there is only one possible unifies theory it just a set of rules of equations. What is it that breaths fire into the equations and makes a universe for them to describe? The usual approach of science of constructing a mathematical model cannot answer the question of why there should be a universe for the model to describe. Why the universe exists.

Most of the present scientists are engaged in the development of new theories which describes the nature of the universe. Science may not spend its valuable time in answering the question why?

On the other hand the religious and the philosophers have realized their limitations and have confined their view of nature to the question 'why'. Scientific conclusions have shown the limitations of religious beliefs regarding the creation of the universe. Here we find that science disagrees with religion.

The mystic and the scientist

The relationship between science and mysticism has become a subject of discussion for both scientists and philosophers. Of course the answer depends on how we define science and mysticism. If science is defined primarily as a method of measurement and experiment, there is not much of a relationship. Here we find that to confine science to measurement and experiment is not correct. Modern scientific conclusions show that science is broader. It leads us to define science as to try to understand reality of nature as a whole. This definition starts to overlap with the area the mystics are interested in.

It is the question about the nature of reality. The inquiry into a matter can lead us to ask whether there is something matter or whether matter is so subtle that it is beyond matter, as we ordinarily know it. Scientists explore matter as far as it can be explored. Will this investigation lead scientists to find something that lies beyond matter?

This question is answered as follows. There is a world immensely more subtle that the ordinary mundane world, and if you believe in something transcendent, it will enable you to understand how that slowly filters down to the mundane.

The extreme religious view is that absolute transcendence beyond the sphere of matter exists. One may reason that there might be something in between these two extreme that exist. Physicist David Bohm calls it the implicate order.

Another alternative is to say that the transcendent God for instance-directly created the machinery of universe. That was the view developed at the time of Newton, which was due to an alliance between theology and science, which both thought would serve their purpose. Until the late seventeenth century, mysticism, theology and science were quite interwoven. They gradually drew apart, as evolution and such other theories developed.

It is interesting to note that the scientist, who first came out with quantum theory, thought of the essence of the world as a mathematical formation. Sir James, Jeans said 'God is mathematician' Eddington, Jeans, Schroedinger, even Heisenberg-dittoed.

David Bohm was told by Von Weizsacker that Heisenberg, in the later years was known as 'the Buddha' because he had rather eastern view of things and his face began to adopt a Buddha like expression.

One really wonders why so many of the great physicists in this century seemed to have a mystical outlook. In this context we should define mysticism as a sense of the unity of things. A sense of a direct contact with the ultimate reality in its unity. The physicists hope direct contact with the ultimate nature of things. Naturally physicists are talking about the Grand unified Theory in which everything would come together. It is an effort to understand the whole cosmos in one question.

We may conclude that it shows the hope for unity is behind the essence of modern science.

Can the mystic prove his claim?

It is argued from the materialists' point of view that the mystic cannot prove his claims. But even the materialist cannot prove that there is nothing but matter. He can merely say that he does not see any reason why one should suppose there is more.

But one may give a common analogy that if you insist that there are little green people on the moon, it's up to you to give evidence. It's not up to someone else to say. 'It might be possible because nothing rules it out.'

Now this may lead to a question what does one accept as evidence? This materialist might say 'I see from evidence that I can explain everything materially, therefore, tacitly I do not accept mystic experience as evidence.' Here the mystic or an artist may say that I experience very subtle things which go beyond matter. The materialist may refute this by saying that he believes that ultimately this all can be explained by matter.

Here we can explain that there are many things which people believed but they proved to be false. In the nineteenth century people believed that everything would be explained in mechanistic terms and now it is found untrue. Since twentieth century science is also limited, we cannot assume that all our expectations about twentieth century science are going to be fulfilled.

Our ideas of matter proved wrong. Matter was found to be far more subtle than was supposed, both for quantum mechanics and relativity. Does 'Subtle' imply spiritual? Yes it moves in that direction. The subtle is that which is intangible, invisible, real.

The experience of the Mystic and the scientist

There is a great similarity in the experiences of mystics and scientists may have a creative perception of some new relationship. If one takes Archimedes, he had a perception as he was getting into the bath that the volume of water displaced is independent of the shape of the object. It was such a tremendously passionate moment that he shouted 'Eureka': This sudden direct perception requires very intense and unusual passion. And here creativity emerges through high energy. Here at this moment the veil of nature is parted for both mystic and scientist.

Einstein expressed sentiments about universe that was similar to a mystical awe. He wrote:

"The most beautiful emotions we can experience are the mystical. It is the power of all true art and science. He to whom this emotion is a stranger is as good as dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty, which our dull faculties can comprehend only their most primitive forms – this knowledge, this feeling is at the centre (of) true religiousness. In this sense and in this sense only I belong to the ranks of devoutly religious men. "

Questions which transcend science

Stephen Hawking is the man whom many consider the greatest mind in physics since Einstein. Hawking characterizes all attempts to interrelate science and mysticism as 'Pure Rubbish'. We believe that the universe should be logical and beautiful. We just drop the world 'God'.

Astrophysicist Jayant Narlikar is no authority on ancient and medieval Indian philosophical and religious texts, but he is familiar enough with them to pass an informed judgment on what is fashionably called new-age scientific literature. He thinks book like the Tao of physics seem to him to be somewhat superficial in trying to draw analogies between ancient philosophy and modern science. They don't impress him and many of his scientists' colleagues share the same view. But in layman's mind such a book produce an impression, especially in our country, as well in the east, since we are basically quite a contemplative lot with a philosophical bent. It then becomes just something interesting to ponder over: modern science is doing basically what ancient philosophy did.

Dr. Jayant Narlikar does not consider that it is right way 'because ancient philosophy is purely qualitative while modern science is based on mathematical models. The sweep of modern science may not be as wide but whatever it does in depth and makes quantitative deductions. He does not compare the two: each has its own different role.'

But like every astrophysicist Narlikar is fascinated by time. And he is constantly in search of ancient Indian perceptions and interpretations of time. His books inevitably contain a reference to the length of Brahma's year 4.32 billion years – which comes closest to the modern time-scale associated with the universe with a quotation from the Vishnu Purana. One day of Brahma elapses when the four Yugas Krita, Treta, Dwapar and Kali are repeated a thousand times. One cycle of four Yugas takes up 12,000 divine years. One divine year is equal to 360 million years.[1]

Dr. Narlikar admits 'The question like' why are there any laws at all that the universe observes, why these laws and no other laws and finally, why do laws that operate here operate elsewhere in the cosmos? These are questions which transcend physics and transcend science.

Why may conclude here that neither science nor religion can claim to answer these question. But these are the two approaches trying to solve the mystery of universe. One need not claim superiority over the other. But you can be scientific minded and still respect the religious effort to solve secretes of nature and you can be religious minded and still you can respect scientific method and its experiments. There is no question of contradiction between them.

We may now take the different sciences, one after the other, and examine their conclusions in relation to the requirement of religious beliefs and a religious way of life. In the next chapter we consider conclusions of modern physics.

1. Goswami Rahul – Stargazer extraordinaire, Independent, Sunday 10 December 1989, p. 3.

6. CONCLUSIONS OF MODERN PHYSICS

New model of the universe

Let us think about the parable of the blind man baffled by the elephant? Each man, isolating just one part described it quite differently from the other. They missed the some of the parts of the 'the big picture'. Looking at the universe as isolated parts can lead to a similar narrow view.

Alvin Toffler thought 'one of the most highly developed skills in contemporary science is dissection, the split-up of problems into their smallest possible components. We are good at it, so good indeed that we often forgot to put the pieces back together.'

There is a need at the present time that the pieces in biology and physics, necessity and chance, science and humanity should be put together again. This may require changing many of our basic assumptions and suggesting fresh ways to think about them, rather we must reexamine scientific goals - its methods - its world view.

Of course one may argue that there is no need of change in science because it develops by its own internal logic, developing according to its own laws in splendid isolation.

But this argument is not valid because science is not an independent entity. It is an open system in society and powerfully influenced by the external environment. There is influence of the dominant culture at every stage of its development.

If we take science at the time of Newton the mechanistic view coincided with the rise of factory civilization, chance played no part in scientific reasoning since at that age machine influenced the scientific theories. These theories pictured the entire universe as a machine. Now the limitation of the machine model of the universe has been obvious.

Early in the nineteenth century, thermodynamics challenged the mechanistic model of the universe. This new theory argued that if the world was a big machine, it was running down, its useful energy leaking out.

This view was contradictory by Darwin's follower who argued that the world machine might be running down, loosing energy, loosing organization, but biological systems were running up, becoming more organized.

By the early twentieth century Einstein came on the stage and now during the last decade of the twentieth century new scientific world models have appeared.

It is also thought that one of the reasons of this revolution in science is reconsideration of the concept of time. Moreover, each culture and each person tends to think in terms of 'time horizons'. Scientists talk of the time in the Newtonian system as irreversible. In the nineteenth century a concept developed which implied that the whole universe is aging and if this is true time is a one way street. It is irreversible.

Here at this point it is argued, if the universe gets better organized as it ages advancing to higher level as time sweeps by, it indicates that scientific views of time may be summed up as a contradiction within a contradiction.

Prigogine and Strangers however thought irreversible processes are the sources of order. There is order out of chaos. There is close relation between irreversibility and communication. These scientists thought entropy is not merely a downward slide towards disorganization but under certain conditions it becomes the progenitor of order and evolution.

As Edgar Morin a leading French sociologists turned epistemologist has written: 'Let us not forget that the problem of determinism has changed over the course of a century'. In place of the idea of permanent laws directing all things in nature there has been substituted the idea of laws of interaction. The problem of determinism has become that of the order of the universe. Order means that there are other things besides 'Laws' that there are constraints like invariance, constancies, regularities in our universe, evolution view of determinism.[1]

We tend to agree with Herma Weyl when he says, 'Scientists would be wrong to ignore the fact that theoretical construction is not the only approach to the phenomena of life, another way, that of understanding from within (interpretation), is open to us, of myself, of my own acts of perception, thought, volition, feeding, and doing, I have direct knowledge that represents the 'Parallel' cerebral process in symbols. This inner awareness of me is basic for the understanding of my fellowmen. Whom I meet and acknowledge as being of my own kind, with whom I communicate sometimes so intimately as to share joy and sorrow with them.'

1. Illya Prigogine – Order Out of Chaos – Banton Books pp. XXIII, 1984

To this view one may take an objection: It may be said that this is view regarding intellect. But one need not consider it as a weakness or defeat of human intellect. In addition to an intellectual power a new horizon is opened before us. Scientists have very little choice: they cannot describe for us the world as we would like to see it but only as they are able to see it. This seeing is the combined effect of experimental results and results and new models of the universe, new concepts. We believe that this new concept of the universe reflects the situations in our own mind.

Illya Prigogine says 'It is hard to avoid the impression that the distinctions between what exists in time, what is irreversible, and on the other hand, what is the outside of time, what is eternal, is at the origin of human symbiotic activity.' It is remarkable that scientific concept of nature is profoundly changed. As a result there is need of new model of the universe which means new relations between man and nature, man and man. Thus we cannot accept the old distinction between scientific and religious values and external world and internal world.

Imagination - essential element of science and religious belief

Experimental observation and recordings are important parts of science but by no means the whole science. Science, it seems, involves four essential elements:

1) One experiences something in nature as source material.
2) One looks at these finding somehow with imagination as one's inspiration.
3) One deduces something else with reason as a guide.
4) Finally one checks these finds with nature as resource.

The realm of rational knowledge is of course the realm of science which measures and quantifies, classifies and analyses. The limitation of any knowledge obtained of these methods have become increasingly apparent in modern science, and in particular modern physics which has taught us, in the words of Werner Heisenberg, that every word has concept, clear as it may seen to be, has only a limited range of applicability.

Although physicists are mainly concerned with rational knowledge and mystics with intuitive knowledge both types of knowledge occur in both fields. This becomes apparent when we examine how knowledge is obtained and how it is expressed both in physics and Eastern mysticism.

Let us consider the essential elements of scientific imagination as instrumental for scientific finding.

Contemporary physics does not tie its conclusions with philosophical speculation. Because conclusions of physics belong to imaginative side while philosophical results are often intuitive. Physicists David Bohm used a new form of imagination which he calls implicate order.

Some scientists would say 'It is no use if it does not produce an empirical pay-off.' But empirical pay-off is not a quality of science but one of the errors of science. It may be that our society demands from science nothing but practical gain. Rationalists as the term is generally understood held that empirical agreement is what is meant by truth provided one has a logical and mathematical argument to back it. Any new idea involves some free play of the imagination.

Einstein got the idea of relativity initially by an act of imagination. As a child, it is said; he imagined how the universe looked like riding on a beam of light.[1]

Coleridge thought of two kinds of imagination, primary and secondary. The primary imagination is the direct expression of the creative intent within the display in the mind, his imagination is an enfoldment of some deeper operation of the mind which is displayed as if coming from the sense and you grasp it as a whole. But the secondary imagination arises when you keep on repeating an image from the primary display and it becomes automatic. Coleridge called it fancy which is the same as fantasy.

So imagination, in the creative scientific sense, is our attempt to make a picture about nature.

Swami Vivekanand once asked a very pointed question 'who can imagine a state of things when oneself did not exist or when nothing existed?' It is the most self evident of all truths. This way of thinking leads us to the religious belief from very early time. There is an idea of immortality inherent in man. This is seen in all ages and all religions. When one prays 'give us life after death': 'The same urge for continuation of life is seen. When in Egypt the pyramids were built to preserve the body of kinds it was an effort to overcome mortality. The concept of Amrutatva is clearly linked with the concept of immortality. In recent times the efforts of superamentallization and divinization of body by Shri Aurobindo Ghosh is an effort to experience immortality. An attempt has been

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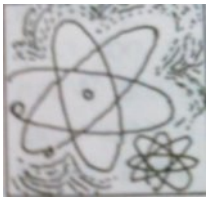
1. Webber Renee – The search for unity, Routledge and Kegal Paul, 1986, p. 35



made here to show a structural similarity between physics and the growth of religious consciousness.'

Does observation affect the observed?

In the science we construct a picture of the world different in several ways from the world as it is seen, touched, heard and tested. Absolute objectivity is not possible in science.

Scientific work is as much a work of the imagination as it is a work at the laboratory bench. It is by the aid of disciplined and rationally controlled imagination that hypothesis as to the nature of things is invented. This procedure leads one first to imagine the mechanism of what is to happen. This suggests fruitful lines of further study. Science is not natural history. It is not the accumulation of facts. It is the building of a picture of the world. It is an intellectual enterprise aimed at understanding the world.

Many kinds of observation are explained by reference to atoms. Without this notion, physics and chemistry would be totally different in content. And yet no one has ever observed an atom, with or without sense extending instruments. A single atom had neither been seen, heard, touched, felt nor tested. Are these then really such things?

From epistemological point of view must be acknowledged that we cannot know them as individuals or by being acquainted with them directly. Does it follow from this that we cannot know them at all? If this were so we should have to say that the word 'atom' did not mean what we had thought it meant. We had thought that 'atom' meant the smallest chemically independent piece of material. We have been using the word atom, so that if we saw and touched a piece of wood, believing it to be made up of atoms. We could quite properly say that we had seen and touched a great chump of atoms. If this is not what atom means what does it means? If the theory that terms like atom are not descriptive and do not refer to real thing is accepted the meaning of the word atom might be worked out by comparing its role with that of another well known term force. Forces are as un-observable as atoms. Any idea we may have of their presence is derived from our observing their supposed effect.

Hence we find that our sense observation has limits. Now let us try to find out whether our act of observation affects the observed thing and if it is affecting what does it signify?

Now let us think of the atomic particle. Einstein called the energy packet as quantum. Max Bovin in 1926 showed that a packet of energy can be considered either as a wave or a quantum of particles. This means particle can exist simultaneously at different places.

Now we come to the point of observation of an electron. Whether that acts of observation affects the observed electron? Whether the observation is direct?

Scientific conclusions show, if you use light to detect the electron, the photon affects the behavior of electron at the spot because photon has some amount of interaction with electron with distances of approach between them.

One of the epistemological premises of idealism is that the observer affects the observed. A flower as we see it is not the flower per-se (assuming the later term has a meaning). The grass is not green in the dark. Now this premise is not only acceptable to but insisted upon by modern physics. When the scientists tries to observe the sub atomic phenomena, the very process of observation influences what he is observing.

Physicists David Bohm comments. The word 'observe' means to gather, to pay attention. Everything is an observer and everything is observed. It is exactly what human beings are doing.[1]

One may ask 'so the electron is observing us?' The answer by physicist David Bohm is 'it is gathering information about us, about the whole universe. It is gathering - in the universe and responding accordingly. Therefore it is observing, if you take that in its literal sense.'

This conception is very like that of Leibnitz's monad. Leibnitz's had said that the monad mirror's the whole universe. This way of looking at things is very congenial to religion. For religion, the whole universe has one rhythm. Everything affects everything else and together all things make a commonwealth of spirits. Nothing is more relevant for the central meaning of the universe.

This gives us a sense of being at home in the universe which is a sentiment religion aims at fostering in us.

A man of religion has always a soft corner for an idealistic metaphysics. He wants his prayers to be heard and answered by a consciousness embracing his own -

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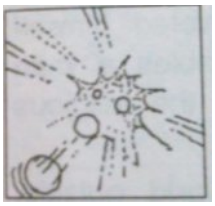
1. Webber Renee – The Search for unity, Routledge and Kegan Paul London, 1987, p. 119



consciousness which understand and sympathies with him. He wants an assurance that there is an all enveloping consciousness which responds to his needs and aspirations. Religion would be meaningless if the world around us is inert, dead and unthinking.

Now metaphysical idealism implies that the world as we see it is supported by a consciousness, greater and better than our own. There are varieties of idealism but what is said in the previous sentence is characteristic of all shades of idealism.

One famous argument- Hegel's for example - for idealism is this. The world is given as an object. But nothing can be an object without a subject. It's the subject which makes it an object. There is conclusion of modern science, to an extent, runs, paralleled to this argument. The explanation of the universe which physics gives isn't supposed to be a picture of it. It is an intellectual construction from which deductions can be made which is verifiable. This is all that a true account of the universe means. When the physicists talks of a Black hole or the space - time continuum, they are not things which we can go and observe but they are constructions of our own and yet they are real.

Now idealism holds that it is the moment of consciousness which give substance to the appearances that we are immersed into. This is a position which is supported by the above arguments of the metaphysics.

There is another basic argument for idealistic metaphysics. It is this, when we know a thing it is not the thing as it is, it is the thing affected by our knowledge. In fact the thing as it is in itself has no meaning; one of the Berkeley's arguments was to the effect that you cannot point to a things existence outside all knowledge. Because as soon as you think of it, it becomes a known object. Unknown things, therefore, do not exist. Whatever exists is thus a known thing that is to say an idea.

This argument may be a bit farfetched but there is a sense in saying that the observer affects what is observed and this support idealism of some sort.

The uncertainty principle of Heisenberg and the quantum mechanics of Planck together imply that certain pairs of quantities, such as the position and velocity of a particle cannot both be predicted with complete accuracy. If you try to calculate the position accurately, the velocity remains, within limits, inaccurate and if you pin-down the velocity the position of that particle, within limits, becomes uncertain. This is not simply what actually happens. It is, theoretically, what must happen. This is because the

very observation of the scientists affects the velocity or the position that is to say what is observed. So the findings of modern physics support idealism and thus indirectly put religion on a firmer basis.

In the following paragraphs we will study what is meant by timelessness, the Big-Bang, the edge of the universe, mysticism, errors of science, eternity unfolding in time, and the thinking capacity of nature.

Perhaps all these concepts are a code word, a disguise for the scientists' desire to display to source behind their equations, conclusions. It was this that Pythagoras may have in mind when he claimed that 'God geometrizes' and Galileo when he said that 'God's book of nature is written in the alphabet of Mathematics.'

Richard Feynman writes 'To those who do not know mathematics, it is difficult to get across a real feeling as to the beauty, the deepest beauty of nature.'

Einstein wrote in the book 'Ideas and Opinions' (1954) 'The longing to behold harmony is the source of the inexhaustible patience and perseverance with which Planck has devoted himself to science.' The state of mind which enables men to do work of this kind is akin to that of the religious worshiper or the lover.

Unlike science, this turns to the world outside, the mystic seeker, turns within, to the laws that govern his own being. But does such a dichotomy violet the mystics claim to have witnessed a unitary reality? The answer to this question is that there is no contradiction, since for the mystic the inner and outer are reconciled through the hermetic dictum: 'as above so below'.

This does not mean that there is no difference between religion and science. The most obvious difference is methodology. Science is quantitative, religion qualitative. Science has a rigorous and formalized methodology, mathematics. The methodology of religion is meditation and practice of Yoga. Science tries to get mastery over gross matter, religion over the subtle mind. Science has shown an impressive insight into the inner working of matter and energy.

Unity - The aim of Science and Religion

The question of the parallels and the differences between religions and science had generated considerable debate in a remarkable and growing literature. I see a connection between science and religion. Unity is the assumption behind nature. It can be discovered both by subjective and objective approach, many verses from Indian scriptures are in

favor of this. It has been discussed in detail in many literatures. I need not spend more time and space on it. It is interesting to see how science consciously or unconsciously is heading towards the same unity.

Obvious examples of these efforts are Newton's grand scheme unifying all masses in the universe through the law of Gravitation, Maxwell's unification of magnetism and electricity, Einstein's unification of matter and energy and of space and time, now scientists are working to unite into one force the present four known basic nature forces, Gravitation, electromagnetism and the strong and weak nuclear forces within the atom. A single comprehensive law incorporating them remains the current ideal.

I feel that the drive of the scientists to achieve this ideal cannot be 'scientific' in the conventional sense. It seems closer to the religious believe that unity is truer, more beautiful and better than multiplicity. The scientific view seems to me similar to Plato's vision that the good, the true and the beautiful are the fabric of reality. But is the search for unity in science itself a religious quest? My hypothesis is that it is.

Behind the intellectual drive of the great scientists a hidden is at work propelling their effort. The scientists senses that nature is simple, subtle, inter-connected and one. This sense is rather intuitive than intellectual. The drive to unveil the inner structure of nature and to express it in the available elegant language is similar to the mystic's insistence to express the experience of that unity which lies behind the multiplicity of appearances.

The great physicist Stephen Hawking was asked 'Why is he interested in the early universe?' he told that 'we all want to know where we come from, and that whatever happened in the first second after the Big-Bang holds the answer to that question.'

In the following pages we will find out the awareness to the question like

1) What happened before the Big-Bang?
2) What lies beyond the edge of the universe?
3) What started it all and why?

POST Quantum science

In the previous chapter we have noted that science before the nineteenth century was not favorable to religious belief or mystical experiences. Till today mist of the scientists try to disassociate themselves from religion. Perhaps the trauma of past

experiences in history may be the reason. A scientist like Giordano Bruno lost his life and Galileo his freedom due to the hold of dogma over science. It is but natural that a scientist becomes defender of truth against superstition. This is what happened before the nineteenth century, but now in the quantum and post-quantum era science and religion seem to be drawing closer together.

Let us think what happen to the concept of time. Time is crucial both to the religionists and the scientists. In pushing back the universe to its first moment, does it seek the timeless? Does the answer indicate that existence of reality is beginning-less and endless, as told by Indian seers?

When faced with such question answering them awesome. It is like the stricken primitive man when he encountered the vastness of nature.

Unidimensional universe

David Bohm is considered as one of the world's foremost theorists of the emerging paradigm. His book 'Causality and change in Modern Physics' (1951) has become a classic in the field of quantum mechanics. His work on plasma is magnetic field as well as his theory set therein plays an important part of fusion studies - a phenomenon now called 'Bohm - diffusion'. In England in 1960 Bohm worked out the effect that bears his name, the Bohm-Aharnov effect. Bohm's work over the past four decades has been primarily concerned with the fundamentals of quantum theory and relativity and their philosophical meaning. His most recent book 'wholeness and the implicate order' (1980) deals with physics, Philosophy of physics and with Bohm's revolutionary view on consciousness.

Bohm's earlier work was on the hidden variables of quantum mechanics. He said there is a hidden order which is at work beneath and seeming chaos and lack of continuity of the individual particles of matter, described by quantum mechanics. The visible material world of our space-time is called by Bohm as explicate and the hidden dimensions of the universe as the implicate order. Bohm proposes that in its inward dimension matter and consciousness, both have their source and become unified. For him our present world that we see, feel and live is three dimensional world space, time and object.

The conclusions of modern physics are unclear because physicists have not thought of inner dimensions of the universe or the implicate order of the universe which

would realize that the all encompassing background of our experiences physical, psychological and spiritual. This source of knowledge of the one-dimensional universe lies in a yet subtler dimension called 'the super implicate order'. Beyond this we can postulate many such orders, merging into an infinite, dimensional source or ground.

Therefore it is very important to go in detail about his conclusions in modern physics. Then we will be able to assess their relevance with religion. We will consider the conclusions of modern biology and also the views of a great physicist of Cambridge, Stephen Hawking who disapproved mysticism and thought it nonsensical to relate physics to eastern philosophy. After considering both the sides we shall decide whether physics melts into metaphysics or not.

What would be the shortest length?

According to general relativity, the gravitational field also determines what is meant by 'length' and metric. If you said gravitational field was made up of waves which were quantized in this way, you would find that there was a certain length below which the gravitational field would become indefinable because of this zero point movement and you would not be able to define length. Therefore, you could say the property of measurement length fades out at very short distances and you would find the place at which it fades out would be about to 10^{-33} cm. That is a very short distance, because the shortest distances that physicists have ever probed so far might be 10^{-16} = Ten raised to minus 16 or so, and that's a long way to go. If you compute the amount of energy that would be in space, with the shortest possible wave length, then it turns out that energy in one cubic cm. would be immensely beyond the total energy of all the known matter in the universe. This vacuum cannot be measured by an instrument. As physics is an empirical science and considers what can be measured by an instrument can be regarded as real. At the same time physics admits that there are particles that cannot be seen in instrument at all.

What we can grasp by this is that the present state of theoretical physics implies that empty space has all this energy and matter is a slight increase of the energy and therefore matter is like a small ripple on this tremendous ocean of energy. This energy has relative stability. And for David Bohm the ocean of energy is not primarily in space and time at all. It's primarily in the inner world, in the implicate order.

Nicholas of Cusa said that eternity unfolds in time. That time is the same as the particles, in a way time is an enrichment of eternity. But we cannot understand it except

from the stand point of the ground of eternity. If we attempt to make time self referential it is going to lead to chaos. From the philosophical view point if in this unity of unity and diversity one looks at the diversity, one can talk about history, change and events. But from the point of view of the unity, one has to conclude that nothing happens, that everything just is. This conclusion reminds us of Ajativada of Goudapada.

For science, past and future are always present as overtones of the present. We may be remembering past but the memory is present, and we are expecting the future, but the expectation is present. The future might be simply the depth of the inner world or the implicate order which is and which is unfolding.

From ordinary man's point of view one is not completely separated from his future, he is already its potential.

Here David Bohm comments "You are your future, but not yet unfolded. You are still unfolding."

Here I remember Swami Vivekanand who said, "Every man is potentially divine. You are yesterday's amoeba and the future Buddha".

David Bohm further explains that as you move faster and faster according to relativity your time rates slow down and the distance gets smaller. So as you approach very high speeds your own internal time and distance become less, and therefore if you were at the speed of light you could reach from one end of the universe to the other without changing your age at all. Existentially speaking r logically speaking time originates out of the timeless. This eminent scientist concludes the mind has two dimensional and three dimensional modes of operation. It may be able to operate directly in the depths of the implicate order where this timeless state is actuality.

Does nature think?

Physicist David Bohm says all of nature is organized according to the activity of significance. This however, can be conceived, in a more subtle form of significance. So in that way every level is both somatic and significant. So we say the atom is organized by the super or the quantum field of information which gives it its significance. The quantum field contains information about the whole environment and about the whole past, which regulates the present activity of the electron in much the same way that information about the whole past and our whole environment regulates our own activity

as human beings, through consciousness. Nature has active information as we have, at least at the level of ‘unconscious’ thought it is similar to thinking. This active information is derived from its own past or elsewhere.

Here one may ask whether the super implicate form of nature which is Bohm’s thought similar to the concept of God?

Any form indicates limitation. God is thought as a formless entity also.

Scientist Bohm concludes here saying people had insight in the past about a form of intelligence that had organized the universe and they personalized it and called it God. A similar insight can prevail today without personalizing it and without calling it a personal God.

7. CONCLUSIONS OF BIOLOGY

Biology and Religion

I shall now have a cursory look at the Biological sciences to see if there is anything to support the religious way of looking at things. The oriental religions look at life as something sacred and they sanction an attitude of awe and respect before anything living.

They hold that there is a point in turning ourselves towards the world of plants and the world of animals with a view to develop a feeling of unison with them. Saint Tukaram said,

"Vriksha walli aamha soyari vanchari"
The trees and creepers are our kith and kin dwelling in forest.

Saint Dyaneshwar said,
"Je Je bhete bhoot tya mani bhagwant"
Which so ever being meets you consider it as God's incarnate?

The Hindu worships the Tulsi plant. Ever if you wonder in the thickly populated streets of Bombay, you will see a little Tulsi growing in a tin container. To regard this as a remnant of fetish worship is too simplistic. It is a plant very rationally selected. It does not require much of water. The herbivorous animals avoid it because of its pungent smell. It has many medical properties of proven worth. Its blossoms do not fade quickly and have a sweet smell. For all these reasons and may be for some others like its capacity of purifying air this plant was chosen as the representative of plant life for man to build up a nexus with it. A case for the sacredness of the cow can be made on similar lines. The cow is not only useful but it beautiful and reflects through its eyes the emotions of kindness and concern. If we care to realize our unity with the animal world, the cow is the best medium. It must have been chosen with full deliberation. It will be a mistake to regard it as a relic of totem worship.

Now the philosophical question that arises is why one must bring oneself in attunement with all that lives and grows. The answer is that it is a mystical experience of much worth. If I look on myself, as an isolated organism merely responding to the universe around me, the feeling of the existentialist anguish soon envelops me, like a log of wood. I am tossed up and down on the waves of the vast sea of existence with no purpose to fulfill. There might come some other log drifting along and meet me only to

part from me forever. Absurdity would be all that life would be all that life would convey to me.

But, if I regard that the life which pulsates in me is the same living principle that enlivens all living beings my life immediately becomes full of meaning. Even when I die, the stream of life (Elan vital) continues and through that I continue to live. I become imperishable. This is a boon that religion brings to me.

But this should not be make-believe. There has to be some probative evidence to support.

1) The purposiveness of live process.
2) The unity of life.

I turn first to Darwin and his followers who seem to deny the teleological categories for explaining evolution. Darwinism, it is said, is well established and nobody challenges it on scientific grounds. But I suppose it is possible to record one's vote of protest on philosophical grounds.

I first summaries the relevant aspects of Darwinism in my own way.

1) Darwin gave a shock to Christendom by denying special creation of the species as described in the Old Testament. He said the varieties of species have their origin in the course of evolution.

2) The offspring of any species is very like its parents. It takes man to beget a man and you can grow a mango tree from a mango seed. Darwin regarded this as an ultimate principle for which explanation was neither required nor was possible (in his days).

Not all offspring are exactly identical with either of their parents. There are variations among themselves and between them and their parents. He called them chance variations.

3) There is not enough food, at least, after some time, there is not enough food for all the new living beings born in that species. Consequently there is a struggle for existence among the members of that species. Some of them have variations which enable them to survive till the age of being a progenitor. These variations are transferred to the next generation. Members of the species which have not these advantageous variations die. Only those which are fittest to survive live. This is called the principle of the survival of the fittest. This process is unceasing. It gives rise to new species.

I would like to offer a few comments on these points in my own way. I shall argue for the case for a stream of life running through all the individuals of all the species and creating new models of life. To say this is not to accept that the classical teleological view. Because teleology presupposes a result already planned. Only some time has to elapse and the result would be three behind the curtain so to say. This is inverted mechanism. In a mechanism the preexisting causes absolutely determine the effect and in this sort of teleology which I have mentioned the effect can be said to determine the causes in the same absolute manner. I do not accept this teleology. But I want to deny the mechanical categories of Darwin. I want to suggest the force of life is going forward without a fixed destination. It is like the activity of a poet. The poet is probing along. He does not know what is to come out of his creative act but certainly he is not behaving mechanically. Similarly the life force that is in all of us is engaged in a creative activity and if I can be even slightly aware of my unity with that stream of life that experience would be supremely rewarding and it would deserve the name of religious experience.

Now let me comment the three points mentioned above in that order.

1) For Darwin and for all Biological sciences it is an ultimate fact that the progeny is like the parents. They do not see that there is something mysterious in this. A computer does not produce a computer but a sparrow begets a sparrow. They will say this is just a difference between a mechanical art-craft and biological generation. This is the defining mark of living process and no more than that. It is however, possible to look at the whole thing in a different way and to feel the mystery of it. Take a banyan seed. It has in it something that determines the structure of the banyan tree that can come out of it. Among the many things this seed No. 1 determines is that the tree will bear seeds which each will produce a banyan tree. Now the determining principle of this second banyan tree was in seed No. 2 but not only this but the second banyan tree will bear seeds that will produce more trees, of this kind. This capacity of it was determined by the first by the first seed. One can think of the whole series of banyan trees to infinity and their structure and the capacity of each seed the trees and the seeds of the next generations were determined by the first seed. Now do we really suppose that the seed No. 1 has in it some characteristics which determine not only the structure of the tree that comes out of it but the capacities of determination of the seeds at each succeeding generation? If it is not more rational to suppose that given the first push there is an effort at every generation to produce its likeness. Darwinism has no place for an effort. It will have then to admit something in each seed which carries infinite potentialities and not only the limited number of genes. It carries a code language to the next generation. The code has to be transmitted generations

after generations and the information to this effect must be there in every code thus transmitted.

2) The off-springs are not exactly like their parents. This dissimilarity is accounted for by what Darwin calls chance variations. But this cannot be regarded as an accounting or an explanatory principle. Chance is just a name for the causation, which we do not understand. It is the name for our ignorance. Ignorance cannot be a help to knowledge. It would be more rational to suppose that the vital force causes variations in itself for adapting to the environment. It may be a method of trial and error. But Darwinism shuns that the approach. It will account for an adaption in some other way, that is to say, in a mechanical way, that is to say in a way which does not involve a purpose or a purposive effort. Let us suppose this other way, namely, the hypothesis of natural selection, explains the facts equally well. The question still remains why we should favor the mechanistic hypothesis in preference to the vitality hypothesis if both of them explain the observed facts equally well. The only answer to the mechanistic way is that it is favored by the scientists. The favor will be all right if there are some advantages to the progress of science in that particular direction. But as far as adaption of a species to its environment is concerned science has no advantage in accepting the mechanistic hypothesis in preference to the teleological one. One can only say a mechanistic hypothesis is science and a teleological hypothesis is non-science. But this is no more than a dogma.

3) We now come to the principle of natural selection. This is a negative principle. It is not meant that after deliberation or some such process a positive selection is made as they do in interviewing candidates for a post. Natural selection is not something that is done but something that happens. Actually nature does not select. We call it selection by a metaphor. Nature plays a destructive role. Those individuals of the species which do not possess biological variations to enable them to succeed in the struggle for existence die. The fortunate individuals, who had the appropriate variations, produce the next generation. These variations get fixed in the race. All this happens due to mechanical forces and due to mechanical weeding out of the unfit. Fitness here has no moral connection. It does not mean any kind of real excellence. The fittest survive simply means those who survive are the fittest. But does this explain things as they really are?

It seems reasonable to suppose that there is an effort on the part of living cells to adapt to the environment. When we take moderate exercise our muscles become strong. Unless the tissues become strong they cannot sustain that amount of exercise. Darwinism will explain this by saying that either they sustain the exercise or they do not. If they sustain we have strong muscles. If they do not; they will be emaciated. But this is not

what happens. If the exercise is moderate the muscles become strong. The other alternative does not take place. Think of the human eye. It has its present structure due to several accretions. Vision was possible only when the last accretion was deposited. But the earliest accretions waited for centuries with no gain to the individuals who were waited for the centuries with no gain to the individuals who were accumulating parts of the human eye so that ultimately vision which is a tremendous gain was possible. Does this not suggest that accretive forces were at work and vision was not the result of unthinking nature weeding out the unsuccessful variations?

Think of thorny plant. It is true that its thorns help it to survive from the destruction caused by grazing animals. But does it mean that thorns arise as chance variations among infinite possible variations and stay in the course of evolution because of their survival value? A rose plant has thorns and it survives. But there are other plants without thorns which also survive without having any internal mechanism for protection. May it not be reasonable to suppose that the thorns are intended to protect the beautiful rose flower from marauding animals? Consider the adaption of one organ of the human body to the other organs of the same body. The wind pipe is closed when we swallow a morsel. This mechanism is absolutely automatic. It is a product of chance? Not only an organ is adapted to the other organs of the same body, the adaption of the organs in the body of a male is also to the organs of some female. So it is not the individual which is a unit but the male and female together becomes a unit for adaption, but which male and which female? One cannot say. The adaption is in the entire species. The species become a unit. Is this consistent with a mechanistic hypothesis?

More than variations we should also consider mutations. Mutations do not take place in one individual but almost in the whole species. They are simultaneous. One explanation of this would be that all the individuals are interacting to the same environment. This is not a satisfactory explanation because the same environment was there all along the perhaps it is not true that the environment is the same for all the mutant individuals. Consider instincts. They are the same all over the world in the same species. This suggests that there is a unitary entity informing the whole species. This does not cohere with the Darwinian hypothesis.

Plant Life

It has taken the starting discoveries of several scientific minds in the 1960 to bring the plant world sharply back to the attending of mankind. Even so there are skeptics who find it hard to believe that plants may at least to be the brides' maids a marriage or

physics and metaphysics. Evidence now supports the vision of the poet and the philosopher that plants are living, breathing communicating creatures, endowed with personality and the attributes of a soul. It is only we, in our blindness, who have insisted on considering them automata. It now appears that plants may be ready willing and able to cooperate with humanity in the Herculean job of turning this planet back into a garden from the squalor and corruption that is now in.

It happened in 1966 Clee Backster, America's foremost lie detector examiner, on an impulse decided to attach the electrodes of one of his lie detectors to the leaf on his dracaena (a house plant) a tropical plant with large leaves and a dense cluster of small flowers. Clee Backster was curious to see if the leaf would be affected by water poured on its roots, and if so how and how soon.

As the plant thirstily sucked water in its stem the galvanometer, to Backster's surprise, did not indicate less resistance as might have been expected by the greater electrical conductivity of the moisture plant. The pen on the graph paper instead of tending upward was tending downwards, with a lot of saw tooth motions on the tracing. It was in fact showing a reaction similar to that of a human being experiencing a brief emotional stimulus.

A galvanometer is that part of a polygraph lie detector which when a weak current of electricity is run through a live human being, will cause a needle to move, or a pen to make a tracing on a moving graph paper in response to mental images or the slightest surges of emotions as they occur to the human guinea pig.

The most effective way to trigger a reaction in a human being strong enough to make a galvanometer jump is to threaten his well being. Backster decided to do exactly that to the plant. He dipped a leaf of the house plant, dracaena, in his cup of hot coffee; there was no reaction to speak of on the meter. He studied the problem several minutes then conceived a worse threat; he would burn the actual leaf to which the electrodes were attached The very instant he got the picture of flame in his mind and before he could move for a match, there was a dramatic change in the tracing pattern on the graph in the form of a prolonged upward sweep of the recording pen. Backster had not moved, either towards the plant or towards the recording machine. Could the plant have been reading his mind?

He left the room to fetch some matches and returned to find another sudden surge had registered on the chart. Reluctantly he set about burning the leaf. This time there was

a lower peak of a reaction on the graph. Later, as he went through the motion of pretending he would burn the leaf, there was no reaction whatsoever. Mysteriously the plant appeared to be able to differentiate between real and pretended intent. In order to establish what was happening and how, he now began on a meticulous investigation of the phenomena he had just witnessed. More than 25 different varieties of plants and fruits were tested including lecuces, onions, oranges and bananas. The observations all bearing resemblance, seemed to demand a new view of life.

Further, Backster found that the plants reacted not only to threats from human beings, but also to unformulated threats such as the sudden appearance of a dog in the room or of a person who did not do with them well.

If a plant threatened with overwhelming danger or damage, Backster observed that in self defense it passes out rather in the way that a human does. This was dramatically demonstrated on day when a lady physiologist from Canada came to Backser's laboratory to watch his experiments. The first plant gave no response whatsoever, nor did the second, nor did the third. Backster checked his polygraph instruments, and tired a fourth and a fifth plant. Still no success, finally on the sixth, there was enough reaction to demonstrate the phenomenon.

Curious to discover what could have influenced the other plants, Backster asked, "Does any part of your work involve harming plants?"

'Yes' the leady physiologist replied. 'I terminate the plants I work with. I put them in an oven and roast them to obtain their dry weight for my analysis.'

Forty five minutes after the visitor was safely on her way to the airport, each of Backsters plants once more responded fluidly on the graph. This experience made Backster realize that plants could intentionally be put into a faint or mesmerized by humans.

Backster was even able to establish that special bond of affinity appeared to be created between a plant and its keeper-even though they were not in close proximity with the use of synchronic stop-watches, he was able to note that his plants continued to react to his thoughts and attention from the next room, from down the hall-even from several buildings away. Backster had no idea what kind of energy wave may carry man's thoughts or internal feeling to a plant. He has tried to screen a plant by placing it in a Faraday case as well as in a lead container. Neither shield appeared in any way to block or jam the communication channel linking plant to the human being. He concluded the

carrier wave must somehow operate the electromagnetic spectrum, and from the macrocosm down to the microcosm.

At the first Backster considered that his plant's capacity for picking up his intention must be form of extra sensory perception. ESP is held to mean, to be a perception above and beyond varieties of the established five sensory perceptions of touch, sight, sound, smell and taste. As plants give no evidence of eyes, ears, nose or tongue and as Botanists since Darwin's time have never credited them with nervous system, Backster concluded that the perceiving sense must be more basic. This led him to hypostasize that the five senses in humans might be limiting factors overlying some kind of primary perception, possibly common to all nature. Backster summarized, may be plants see better without eyes, better than human do with them.

This may be compared with Jain view that the truly direct knowledge is without the mediation of sense organs.

Direct knowledge is of three kinds -

1) Avadhi
2) Manahparyay
3) Keval.

Avadhi knowledge means clairvoyance. Knowledge of a thing in particular area and time without the help of senses. This kind of knowledge is the result of a religious man's progress towards Moksha.

Manah paryay knowledge is called telepathy. One can know the thoughts of others. The highest knowledge is keval. Here one gets the knowledge of material and subtler world. This is the only direct knowledge (Keval-Jnana).

Cellular-Consciousness

Another interesting observation was done by Backster. In order to explore the idea some sort of cellular consciousness must be common to all life, Backster found a way of attaching electrodes to infusions of all sort of single celled creatures such as amoebae, Paramecium, Yeast, Mould cultures, scrapings from the human mouth, blood cells, and even spermatozoa. All were subject to 7 charts just as interesting as those produced by the plants. Sperm cells turned out to be surprisingly canny in that they seemed to be capable of identifying and reacting to the presence of their own donor, ignoring the presence of other males. Such that a observation seem to imply that some sort of total

memory may go down to the single cell and by inference that the brain may be just a switching mechanism, not necessarily a memory storage organ.

'Sentience' says Backster does not seem to stop at the cellular level. It may go down to the molecular level and beyond. All sorts of things which have been conventionally considered to be inanimate may have to be revaluated. These experiments and results were written up in a scientific paper published in the winter of 1968 in Volume X of the international Journal of Parapsychology under the little Evidence of Primary Perception in Plant Life.

Plants have memory

The magic and the mystery of the world of plants lying behind the soviet scientific experiments has also recently become the subject of a new book entitled 'Grass' by a popular writer Vladimir Solouknin, which appeared in four issues of the three million circulation magazine Nauka i zhizn (science and life). Solouknin learned that a prominent member of the Soviet Academy of sciences working in the Siberian Research Centre of Akademogorodok had stated.

"Don't be amazed we too are carrying out many experiments on plants and they all point to one thing : Plants have memory : They are able to gather impressions and retain them over long periods. We had a man molest, even torture a geranium for several days in a row. He pinched it, tore it, pricked its leaves with a needle, dripped acid on its living tissues, burned it with a lighted match and cut its roots. Another man took tender care of the same geranium watered it, worked its soil, sprayed it with fresh water supported its heavy branches and treated its burns and wounds, when we electrode our instruments to the plant, what do you thing happened? No sooner did the torturer come near the plant than the recorder of the instrument began to go wild. The plant didn't just get 'nervous', it was afraid, it was horrified. Hardly had this inquisitor left and the good man taken his place near the plant then the geranium was appeased, its impulses died down. The recorder traced out smooth; one might almost say tender lines on the graph."

In addition to plants ability to recognize friend and foe, the soviet scientists have also noticed that one plant supplied with water can somehow share it with a deprived neighbor. In one institute of research a corn stalk planted in a glass container was denied water for several weeks. Yet it did not die, it remained as healthy as other corn stalks planted in normal conditions nearby. In some way, say Soviet botanists, water was transferred from healthy plants to the prisoner in the jar. Yet they have no idea of how this was accomplished.

Flow of Consciousness

Can genetic information pass from one organism to another across a distance? The very question seems incredible but this is demonstrated by Dr. Jiang in Soviet Russia.

Any living cell is tiny emitter of electromagnetic waves of the fairly widely disseminated band which radio engineers referred to as the UHF (Ultra High Frequency) band. Dr. Jiang is confident that on these waves living matter tells its story. Or, in more accurate terms, it conveys genetic and other biological information. If man could contrive to catch this extremely faint electromagnetic voice and make a whisper its mysterious hereditary watch ward - to an alien cell, this would make possible a directed change of heredity, the crossing of different plant and animal varieties, and the curing of certain diseases. In general a new era in biology and medicine would dawn.

Dr. Jiang has registered such an achievement. If you place a living duck in the receiver, you will be able to convey its genetic information to the living embryo, of a hen's egg and obtain a hen-duck. It would be a chicken with certain characteristic of duck.

And if you did the other way around, that is, place a hen in the receiver and convey its information to duck's egg?

'Then you will get a duckling with certain characteristics of a hen.'

The strange phenomenon discovered by Dr. Jiang explains the limitations of these scientific conclusions. After all, it is indeed unclear how information travels from one living organism to another across a distance. Nobody mixes or replants anything. There is no visible intervention in the process. At the same time, a chicken mysteriously develops certain characteristics of a duckling, and a rabbit is born, sighted like a kid.

Possibly, this is due not to electromagnetic waves or the bio-U.H.F. unit at all as Dr. Jiang believes, but to some other agency.[1]

This modern biological conclusion supports the view that there is a flow of consciousness enveloping the animal and plant life.

[1] Sputnic – Digest of the Soviet Press, December, 1989, pp. 83 to 85 (Abridged from the weekly Nedely by Alexander Yeveseyer).

Cybernetics and body

The latest developments in biology may end by altering our conception of the universe as much as the dinosaur altered our conception of the earth. The time may not be far off when we can accept certain spiritual phenomena as naturally as we now accept the existence of atoms.

Cybernetics was invented in 1948 by the physicist Norbert Wiener of the Massachusetts Institute of Technology. It is the science of control and communication, in machines and animals. (The Greek work Cyber-nets means a steer-man of Governor). The floating ball in the lavatory cistern is a simple application of cybernetic control; when the cistern is full the ball cock cuts off the water. With a little ingenuity one could device a similar control to turn off the bath taps when the water reaches a certain level, saving oneself the trouble of sitting up in the bath. But in science and industry, the process one wants to control may be many times more complicate than bath taps; it may, for example, be same chemical process that might develop in several directions, in which case one must make use of an electronic computer and programmed it to deal with many possible situations. A card with s few holes punched in it is enough to give the computer its instructions and to make is behave like a foreman seeing that a job gets done property.

Since the late nineteenth century, it has been understood that living creatures derive their characteristics from tiny cells called genes, which are contained in the male sperm and the female egg. The color of my hair and eyes and the size of my feet, are all determined by the genes. But no one was sure how the genes did this. In the mind 1950's it gradually became clear that the genes are like a computer card with holes punched in it. The holes are actually molecules of a substance called DNA, linked together in the form of a double spiral, something like two springs twisted together in opposite directions.

The more we know about this computer system that makes us what we are, the more baffling it becomes to appreciate Darwin's theory of evolution accounting for the giraffe's neck and the elephant's trunk in terms of accident just as you might explain rock form into the shape of a face by pointing to the wind and rain. Science hates teleology the notion of purpose. The rock did not want to be sculpted into the shape of a face, and the wind and rain did not want to be sculpting it. It just happened. Similarly, biologists hate the heresy known as vitalize notion that life somehow 'wants' to produce healthier and more intelligent creatures, they just happen to get produced because health and intelligence survive better than sickness and stupidity. But when one realizes that human beings are produced by a highly complex computer card, it becomes difficult to avoid slipping into teleology and spiritually and wondering who programmed the computer?

In 1969, a cybernetician, Dr. David Foster, lectured to the International Conference on Cybernetics at the College, London and sketched some of the spiritual implications that these discoveries. He pointed out that from the cybernetician's point of view; it is possible to consider the universe in terms of date and data processing. An acorn, for example may be regarded as the program for an oak tree. Even an atom can be thought of as a computer card with three holes punched in it, the holes being (a) the number of practical's in the nucleus (b) the number of electrons orbiting round it (c) the energy of these electrons expressed in terms of the smallest known particle of energy, Planck's constant.

Dr. Foster goes on, 'surely it must be obvious that the essential nature of matter is that the atoms are the alphabet of the universe, that chemical compounds are words and that DNA is rather a long sentence or even a whole Book trying to say something such as 'elephant', 'giraffe' or even 'man'.'

He goes on to point out that the basic building brick of any electrical information theory is one electrical wave, and a wave consist of two halves, because it is measured from the top of one 'bump' to the bottom of the next trough.

That is, the wave is a binary system and computer works upon binary mathematics. This is an important step in his argument for we think of 'waves' as the basic of the universe, then you can think of life, in fact, of all matter as being due to waves that have somehow been cybernetically programmed.

Dr. Foster is saying that to the eyes of cyberneticians, the complete structure of life around him reveal data processing on a massive scale. This is a matter of scientific fact. And he naturally finds himself wondering what intelligence processed the data?

And now, Dr. Foster takes his most controversial step. He explains that 'as an automation consultant, whenever I design a control system for a process it is axiomatic that the speed of the control system must be greater than that of the motions of the process concerned. For example, you can drive your car because you can think faster than the engines works; otherwise you would crash. But in that case, programming of matter must be achieved by vibrating waves, much faster than the vibrations of matter, that is cosmic radiations and in Dr. Foster view, these are probably what is hidden behind programming of the DNA molecules.'[1]

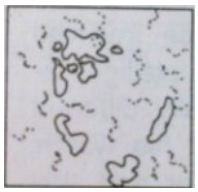
[1] Saparina Yelend – Cybernetics within US, Peace Publishing, Moscow, 1966.

But observe the central point. A wave that carries information is quite different from a wave that does not. The information is imposed on its structure by intelligence. Dr. Foster's conclusion, although stated with the caution of a scientist and headed around with qualifications, is that the level of intelligence involved must be a great deal higher than our human intelligence. What Dr. Foster is saying is not fundamentally different from Paley's remarks that when he looks at his watch, he realizes that it implies an intelligent maker and that man is after all more complete than any watch. Colin Wilson thinks that Dr. Foster is not trying to introduce God through the back door. He is less concerned with theories about who does the programming than the fact that there is a programming throughout nature, he is concerned with the question of how the information gets carried to the DNA, and 'cosmic' 'radiation' suggests itself as a plausible assumption. He says one establishes a new picture of the universe as a digitized universe an information universe, but because of the strong cybernetic influence at work, Colin Wilson prefers to call it the Intelligent Universe.

The conclusions of science of cybernetics are not the last word. Illy Prigogine, who won the Nobel Prize in 1977 for his work on thermodynamics of non-equilibrium systems, is not satisfied with merely stating the communication in cells or a self organization in cells. He explained the concept of time. Einstein wanted to preserve above all the objective meaning of communication. Illy Prigogine explained communication and irreversibility are closely related. Communication is at the base of what probably is the most irreversible process accessible to the human mind, the progressive increase of knowledge.

Illy Prigogine answered the question of the relation between being and becoming, between permanence and change.

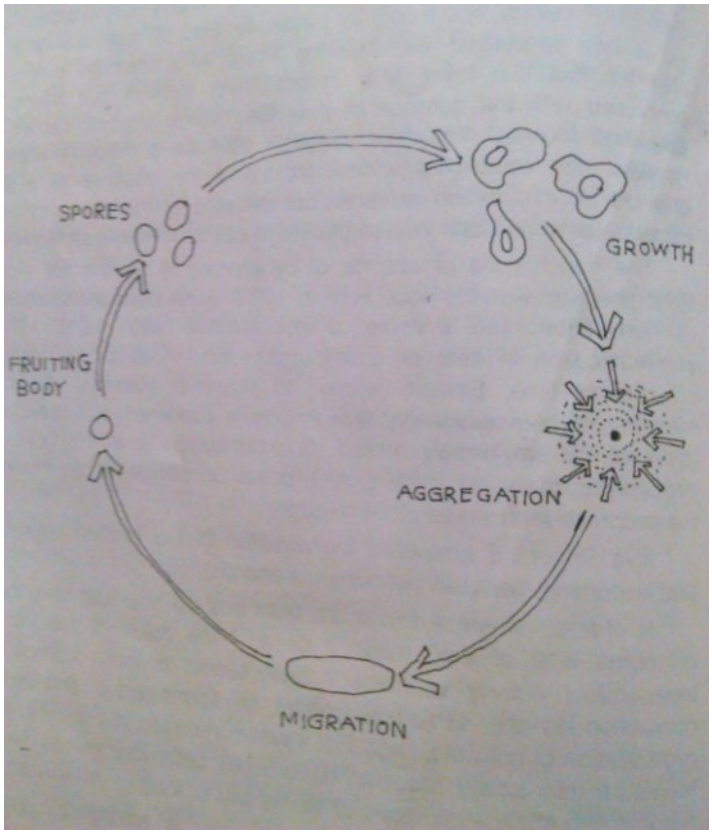
Is change, whereby things are born and die, imposed from the outside on some kind of inert matter? or is it the result of the intrinsic and independent activity of matter? Seventeenth century science arose in opposition to the Biological model of spontaneous and autonomous organization of natural beings. But it was confronted with another alternative. Is natural intrinsically random? Is ordered behavior merely the transient result of the chance collisions of atoms and of their unstable associations?



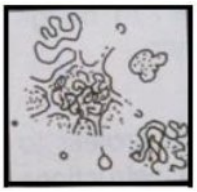
Illy Prigogine maintains a new unity is emerging: irreversibility is a source of order at all levels. Irreversibility is a source of order at all levels. Irreversibility is the mechanism that brings order out of chaos.[1]

The aggregation of cellular slime molds and furnishes a particularly remarkable example of self-organization phenomenon in a biological system in which chemical clock plays an essential role.

A Self Organization in cell



[1] Illya Prigogine (Winner of the Nobel prize) and Isabelle Stabgers, ORDER OUT OF CHAOS, Bantam Books, pp. 155, 159.



A living system appears very complex from the Thermodynamic point of view, certain reactions are close to equilibrium and others are not. Not everything in a living system is 'alive'. The energy flow that crosses it somewhat resembles the flow of the river that generally moves smoothly but that from time to time energy it contains.

Let us consider another biological process that also has been studied from the point of view of stability the aggregation of slime moulds, the Acrasiales amoeba (Dictyostelium discoideum). The process is an interesting case on the borderline between unicellular and pluricellular biology. When the environment in which these amoebas live and multiply becomes poor in nutrients, they undergo a spectacular transformation (see figure on page 80) starting as a population of isolated cells, they join to form a mass composed of several tens of thousands of cells. This all the while goes on changing the shape. A foot forms itself consisting of about one third of the cells and containing abundant cellulose. These feet support a round mass of spores, which will detach themselves and spread, multiplying as soon as they come in the contact with a suitable nutrient medium and thus forming a new colony of amoebas. This is a spectacular example of adaption to environment. The population lives in one region until it has exhausted the available resources. It then goes through a metamorphosis by means of which it acquires the mobility to invade other environment.

Communication between cells

An investigation of the first stage of the aggregation process reveals that it begins with the onset of displacement waves in the amoeba population, with a pulsating motion of convergence of the amoebas towards a 'center of attraction' which appears to be produced spontaneously.

Experimental investigations and modelization have shown that this migration is a response by the cells to the existence in the environment of a concentration gradient in a key substance, cyclic AMP, which is periodically produced by an amoeba which is the attractor center and later by other cells through a real mechanism. Here we again see the remarkable role of chemical clocks. They provide as we have already stressed, new means of communication. In the present case, the self organization system leads to communication between cells.

It seems that the whole trend of biological science is to show that Biology cannot be reduced to physical chemistry and that the vitality hypothesis is not entirely outdated. There is room for hypothesizing a consciousness at work in biological processes. One of

the attitudes of religiosity is an expanding the consciousness. This attributes becomes meaningful if there really exists a consciousness wherein to merge the individual consciousness of the religious man.

DNA as instruction

Scientists had launched a 3 billion dollar project to map the chromosomes and decipher the complete instructions for making a human being. Encoded in the genome, the DNA in the inflant's 46 chromosomes, are instructions that affect not only structure, size coloring and other physical attributes but also intelligence, susceptibility to diseases, life-span and even some aspects of behavior. The ultimate goal of the human genome project was to read and understand those instructions.

In the 35 years since James Watson and Francis Crick first discerned the complex structure of DNA, scientists have managed to decipher only a tiny fraction of the human genome.

One of the early benefits of this research in Biology has raised some troubling religious questions. We are mainly concerned with this aspect. Suppose a person is afraid of death. He fears that he was inherited a serious disease for which there is yet no treatment or care. Some people might need advance knowledge so that they can prepare themselves and their families. Someone may ask 'Do you really want to know what you are going to die of?' The questions multiply as the scientific conclusions progress. Thomas Murray Director of the centre for Biomedical Ethics at Case Western Reserve University, acknowledge that some people are worried that a complete map of genome might somehow diminish our moral dignity, reduce us somehow to nothing more than the chemical constituents of our bodies.

Here we can answer that 'It is not making a human being insignificant but knowing the entire sequence of DNA base pairs is like having the full musical notation of Beethoven's Ninth Sympathy. In no way does that knowledge diminish the grandeur of the symphony itself.'

Even to label genes as defective can be dangerous. In the 19th century new discoveries about heredity and evolution gave rise to the eugenics movement[1] – a misguided pseudo - science whose followers thought that undesirable traits should be symmetrically purged from the human gene pool. Believers ranged from the American eugenicists of the early 1900s, who thought humans should be bred like racehorses, to the

[1] Dorfman and Nash Madeleine – DNA and ethical dilemmas, Time International, March 20, 1989.

German genetics who gave scientific advice to the leaders of the Third Reich, instructing them on how the species might be 'purified' by selective breeding and by exterminating whole races at a time.

This fear is not correct because no modern geneticist today talks about creating a master race. Scientists are careful to point out those experiments in gene therapy will be aimed at curing hereditary disease and relieving human suffering, not at producing same sort of superman.

If biologists can change the course of heredity, can they try to play God and human destiny? In 1983 activist Jeremy Reflain, a longtime opponent of many kinds of genetic research, and several dozen theologians mounted on unsuccessful effort to persuade American Congress to ban all experiments on human germ cells, said Avery Post president of the United Church of Christ, at the time. We are not good enough or responsible enough. There is no question about it. We will abuse this power.

Religious people having such dogmatic attitude are in minority but many ethicists, philosophers and scientists agree on certain basic principles, e.g. genetic engineering in humans should be used to treat diseases, not to foster genetic uniformity.

Knowledge is power, it can be dangerous, but it can just as easily be used wisely, Case Western's Murray says 'If we can absorb Copernicus and Galileo, if we can absorb Darwin and Freud, we can certainly absorb mapping the human genome. The task ahead is to save lives but at the same time preserve human religious values.'

Forms of Plato-Aristotle and Biology

One of the recurrent questions is what governs this world? And is there a grand principle or of the world is ruled by the blind, mechanical pulses of inert molecules combining at random? This is a question asked and discussed by scientists and philosophers. In the previous chapters we have seen the answers given by the physics and astrophysics. Now let us see the meaning of the conclusions of Biology.

Biologist Reputer Sheldrake believes that something deeper than blind chance governs the material world. He postulates mor-phogenetic fields, (from morph = form and genesis = coming-into being). These invisible fields are the matrix for all form, development and behavior.

The ability of living organism to reach the same goal, even if you disrupt them. Cut a bit of embryo and it can grow back again. This phenomenon cannot be explained

by a mechanistic view point. Modern thoughts in biology suggest the morphogenetic field is the cause of the specific form.

Sheldrake considers, heredity in living organism involves not only genes and DNA but also morphogenetic field. These fields are derived from past organism of the species through the process he calls morphed resonance.

The present mechanistic approach to Biology is like trying to understand the picture on the screen of the TV set by more and more detailed analyses of the chemistry, of the transistors and condensers and wires and so on completely leaving out of account the fact that the picture depends on transmission coming from somewhere else. But the fact is that neither radio nor TV nor living organism can be explained simply in terms of the chemistry and the arrangement of their components.

Here the mechanists will argue, "Well we admit we cannot explain it now but we will be able to explain it in the future."

But this is like issuing updated promissory notes and it is not a strict scientific hypothesis. Even the mechanistic biology is forced to recognize sanctioning like morphogenetic fields. These are introduced in a disguised form in phrases such as 'genetic programs'. The genetic program is not the same as DNA, because DNA is present in all the cells of the body and yet the eyes and ears and the kidneys and liver all develop quite differently. If they were following the same program, they would not develop differently. So you have to consider that something exists which is above and over the DNA to structure their development.

For Plato, the forms give the 'layout' of the house of life, the sizes and shapes of its rooms and their relations to one another. Take away the bricks and mortar provided by the sensible order, and the plan continues to exist, to be sure, but not as another thing.

The famous Aristotelian dictum is 'No form without matter, no matter without form' at least, as for as the sensible world is concerned. It means in every sensible substance, two elements or aspects are fused. On the one hand there is form, which makes it particular concrete objects of its kind. These two aspects cannot be separated from each other as Plato, in Aristotle's opinions, had maintained.

Thus it is clear that the form of an organism depends on a pre-existing archetype which moulds or shapes the developing organism. These modern Biological conclusions are closer to Platonic and Aristotelian views of form. The only difference is that both thought of the forms as fixed or permanent while the present day Biology does not.

8. CONCLUSIONS OF ASTROPHYSICS

Is Timeless Existence Possible?

The conclusions of modern science throw some light on the concept of timeless. After the theory of general relativity there are no longer such things as an absolute time. Time is an aspect of an event that takes place. It is an event time. Event does not carry a fixed time form for many other events. It is not necessary that between two events there must be a relation of simultaneity or one being earlier and the other later. From this it follows that timelessness can be real. It is theoretically possible for one to remember the future and enter in the past. This is not actually possible simply because the arrow of time points in the same direction as the arrow of expansion of the universe.

If the universe were contracting and in the long run will collapse in the black-hole one could actually visit the past scenes in the history. The reason (If one calls it a reason) why the arrow of time is pointing to the other direction is that otherwise intelligent beings like ourselves could not exist.

There are at least three arrows of time that do distinguish the past from the future. They are the thermodynamic arrow; the direction of time in which disorder increases; the psychological arrow, the direction of time in which we remember the past and not the future; and the cosmological arrow, the direction of time in which the universe expands rather than contracts.

Prof. Stephen Hawking says 'The psychological arrow is essentially the same as the thermodynamics arrow, so that the two would always point in the same direction.' The no boundary proposal for the universe predicts the existence of a well defined thermodynamics arrow of time because the universe must start off in a smooth and ordered state. And the reason we observe this thermodynamic arrow to agree with the cosmological arrow is that intelligent beings can exist only in the expanding phase. The contracting phase will be unsuitable because it has no strong thermodynamic arrow of time.[1]

So it seems that what we earnestly ask of religion is shown to be logically not impossible by the findings of modern science.

[1] Hawking Stephen W., A Brief History of Time, Bantam Books, London, March 1989, p. 161.

Scientific concept of timeless

When we think about time there are two primary questions before us - (1) whether time is an entity? (2) whether time is measurable. Scientist's answer is affirmative. Time is an entity and it is measurable.

It is measured in two values minimum and maximum. Former depends on the shortest distance that is called Planck's time and later depends on maximum distance.

1) Doppler (optical media)
2) Red (Gravitational media)

As the distance of movement of a pendulum becomes a measurement of time in mechanical clock, the two levels of atoms vibration called as atomic oscillations are known as cesium atom. This was considered as standard time. These currents of thought came from those who believed in standards.

In adopting this method of measurement of time Britishers and Europeans never thought of Nature, the motions in planets. Thus their measures became artificial. While Indian and Greek thinkers gave importance to planetary motions. Ancient Indians developed concept of time through periodic motions of nearby objects like moon, Jupiter, sun. Their lunar calendar was based on the motion of the sun. Jupiter was considered as standard because after every 60 years it comes to an exact position in relation to sun and earth.

Bhaskaracharya had introduced time and its measure. Time was thought as relative by Nagarjuna. Not only time was measured by ancient Indians but space also was measured. Trigonometry was invented in India. Similarly Greek invented figures and geometry, Plato stressed the importance of geometry.

When the philosophers in the past said 'you cannot step twice into the same river, for fresh water are ever flowing.' Nicholes of cusa said that eternity unfolds in time. Time is looked upon as made of particles and so adding of time is an enrichment of eternity.

Scientists David Bohm argues, we cannot understand it except from the stand point of the ground of eternity. If we attempt to make time self referential it is going to lead to chaos. Past and future are always present as overtones of the present. We may be remembering the past but the memory is present. The future might be depths of the inner world of the implicate order which is and which is unfolding.

For Illy Prigogine : ‘Time is creation. The future is just not there. We reach an idea of time different from the classical Aristotalian subdivision of past, present and future along a straight line, with the present as a point seperating the past and the future. The classical concept is very difficult to hold because the present would be only a point. But if the present is only a point how can it really separate the past and future?

In a sense it is past and the future which is there, not the present.

Finally you conclude in the manner of Leibniz who said that world of instantaneous consciousness is also unconscious.

But by including the second law of thermodynamics scientist comes to a concept of time in which the past is there, the present has a finite duration, and the future is not yet there. It is a concept of nature very similar to biological time.

Buddhist cosmology claims that some human experience of multidimensional consciousness where, by contrast to three dimensional Cartesian consciousnesses, it’s possible to convert time into space. If you stand back far enough, then instead of seeing time and the arrow of time with its flow you perceive them simultaneously as conscious, present experience.

Let us see what scientist Illy Prigogine says about it. For him; in convective currents which arise in a heated thin layer of liquid. Here time is transformed into space.

Serge Pahout ahs said that ‘time here become space’. Time is something much more complex than the number, you read on your watch. Of course it has t keep track of the watch, but there is much more to it than that.

In recent work on dynamical system Illy Prigogine and his colleague Misbra have introduced the idea of internal time. As we are living in a single universe, this internal time is not independent of astronomical time. Things hve to be synchronized. Therefore, the change of the average internal time is related to the time of planets, to the time of the watch. Space in a realization or related to one vision, of internal time. By describing the internal, we also emphasize the autonomy of human beings.

For Stephen Hawking, time and space and everything else are really in us. They are just mathematical models that we have made to describe the universe. It is really meaningless to talk about being out side because we are inside the system.

Hawking explains we chose to measure time from the Big-Bang. But the Big-Bang is a point if space-time rather like any other point of space time.

Then what happens before the Big-Bang? The scientific answer is, it is like asking what happens at the point one mile north of north pole. The universe is completely self contained.it does not have any beginning or end it does not have any creation or destruction.

Plato said Time is a moving image of eternity. A number of mystics in different times and mystical experiences among which the experience of timelessness is very common. This experience of timelessness is thought as a victory of man over human body which is peerishable what remains as permanent or immortal is the soul. When a mystic realizes the immortality he naturally ascends the boundries of mortality of physical of physical existence. Thus the experience of timelessness is nothing but experience of immortality.

One may challenge the validity of such experience. Dr. Radhakrishnan answers the mystics were from different places and of different period of history with different background, still they had this common universal experience.

The current theory about the origine of the universe which is widely although not universally accepted is known as the Big-Bang. Simply stated, it holdes that there existed a ball of protomatter which for reason or cause not yet eplained exploded with inconceivable ener and that during the first few milliseconds half of the work of creation had been accomplished. All of the material that was to form all galaxies was contained in that original ball of protomatter. This is believed to have occurred some 40 billions of years ago. Science haolds that there is evidence of such a catastrophic beginning of the universe in certain radiations which pervade all space.

No doubt many people have asked questions such as-

When did Big-Bang take place? Or did space exist before the Big-Bang? Did space, energy and time come into being at that moment? Does science seek the beginning of time or does it seek the timelessness.

Thought these and similar questions are created by science, the line between science and mysticism has grown thin.

Is there an edge to the universe?

Scientists are interested in the early universe. Rahter everyone is interested to know where it comes from and how the universe aeose. Scientists are reasonably confident that they know the history of the universe up to one second after the Big-Bang. What happensa before that is much more speculative. The part that one is most interested in is presisely this one second.

For stephen Hawking ‘there does not really have to be any beginning to the universe. It might be that space and time toghether are like the surface of the earth, but with two dimensions, with degrees of lattitude playing the role of time. In that sense, you can say that the surface of the earth starts off at a single point at the pole and as you move downwards in lattitude the circle gets bigger, and that corresponds to the universe expanding. When you get down to the equator, you reach a maximum size and that corresponds to the universe reaching a maximum size.’

For scientists it becomes very important to know whether there is or not an edge to sapce-time? This become important because if there is an edge, somebody has to decide what should happen at the edge.

Scientist have no explanatory principle for the edge of space-time otherwise, scientist could solve the equation.

Here some scientists use the concept of God like a principle synonymous with the laws of the universe. Of course there would not be a connection of this God with mortality or a moral being from scientific view.

There is no evidence either way, for there being an edge or there being no edge to the universe. For the present scientific conclusions this remains a mystery or the unknown laws of nature. Similarly, present science cannot go further to answeer the question what happened before time began?

These questions lead us outside the realm of science and then we are in the realm of religion and philosphy. At this point we learn that the universe cannot be understood through one single approach such as the religious, the scientific or the philosophical. This would be like dividing the universe into compartments which would be impossible.

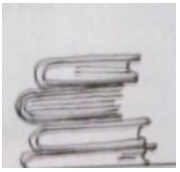
We have to accept that religion, science and philosophy are not separate things in themselves. Rather they are the various approaches to the unniverse according to the nature of the minds that make the approach. Among the millions of minds that seek to

know that there are some with a religious bent, some with a scientific bent and others, with philosophical bent. Each is going to seek for knowledge or truth according to his own nature. As it is said, 'the path is one, the ways must vary with the pilgrims' or as it is said in Indian tradition, 'all rivers ultimately lead to the ocean.'

In the words of Swami Vivekanand 'sciencce is nothing but the finding of unity. As soon as science would reach perfect unity, among phenomenal it would stop from further progress, because it would have reached the goal.' Thus chemistry could not progress further when it would discover one of element out of which all others could be made. The physics would stop when it would be able to fulfill its services in the discovering one energy of which all others are but manifestations, and the science of religion become perfect when it would discoverr him who is the one life in a universe of death, he who is the constant basis of an ever changing world., one who is the only soul of which all souls are but delusive, manifestations. Thus it is, through multiplicity and duality, the ultimate unityis reached. Religion can go no further. This is the goal of all science. All science is bound to come to this conclusionin the long run. manifestation and not creation is the world of science today, and the Hindu is only glad that what he has been cherishing in his bosom for ages is going to be taught in more forcible language, and with further light from the latest conclusions of science.[1]

This thought of an Indian seer was expressed in the parliament of Religion in Chicago on 19th September, 1893. About a century back when science was in an earlier stage withought the theory of relativity or big-bang or black-holes.

[1] Vivekanand Swami – Selections from Swami Vivekanand, Advaita Ashram, 1949, p. 10.



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  S. W. Hawking CH CBE FRS
  Lucasion professor of Mathemaitcs,
  Cambridge

- I read the book with interest. It gives a wide ranging discussion of issues pertaining to sciencce, religion and philosophy. Author has extensively quoted different thinkers in this field. Thus the reader is able to get a wide spectrum of views.

  J. V. Narlikar, Director
  Inter University Center for Astronomy,

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  Prof. and Head of Dept. of Psychology, National College and visiting professor of Dept. of applied Psychology of Bombay University.

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  CSIR (Emeritus Scientist)
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  Dr. N. G. Rajurkar, Professor Emeritus
  Political Science, Osmania University

- The book successfully shows Science is not antagonastic but complementary to the Religion. The book is useful for both intellectual and faithful religious readers.

  Prakash Kardalay, Resident Editor,
  Indian Express, Pune.