CHAPTER II

CONCEPT OF MIND
I don't think, therefore I am not.

- New Joke
CHAPTER - II

CONCEPT OF MIND

2.1 Mind-Body Problem

The beginnings of the study of mind, its place in the universe, and its relation to the body can be traced to antiquity. During every period of time in the past there have been a lot of thinkers who have engaged themselves in the philosophical speculation about the nature of the mind. Among the persistent problems of philosophy, few are as complex and difficult as that of the relation between mind and body. In fact, there are quite a few who believe that if the question of mind's relation to body and vice versa is solved, then it may help human beings to resolve many of the problems, some of them even unrelated to the mind-body issue. Even at the present time, many a philosopher make mind-body problem a focal theme of their enquiry. The theme is all the more pertinent to our inquiry because it is likely to have a direct and indirect impact on theoretical and practical concerns of Artificial Intelligence.

The last sentence of the foregoing paragraph may raise a few eyebrows in the philosophical circles. Some of them may ask: We agree that the solution to this vexed prove that has left us and many of our predecessors sleepless for thousands
of nights may help us even in the remote areas of intellectual arena. But what it has got to do with the development and growth of computers, robots and thinking machines?

The need to find a solution [permanent, if possible] to this problem is increasingly felt as new technologies are developed. In fact the question of mind and its relation to body is very fundamental to the problem of Artificial Intelligence and Thinking Machines. It is one issue that is more and more likely to have enormous influence on the future technology. It may put a full stop to all the research activities carried on by a band of enthusiastic scientists or may become a highly significant instrument or a superb stepping stone [if one would like to put it that way] to the development of technology in particular and human civilization at large.

If at any time in future it is demonstrated beyond doubt [and is repeatable-let us put it that way - to satisfy the sceptics] that there exists nothing called mind and all the so-called mental events, thinking, feeling, etc., are nothing more than various brain states and also that almost everything can be known about the structure and functioning of a human brain, then, at least in principle, all such brain states or events or processes can be simulated in a computer and thinking machines [why, even humanoids] are possible.

This view is not bizarre and needs to be treated with appreciation from the side of philosophers. A more refreshing and somewhat new approach called
Computational Neuroscience has emerged in the late eighties and is now fast developing into a significant field of study. Advocates of this school of thought are of the opinion that "the ultimate aim of computational neuroscience is to explain how electrical and chemical signals are used in the brain to represent and process information."1

It should be pointed out here that the above-mentioned approach is not a newly fabricated picture of the old identity thesis of classical physicalism, even though the present position of Computational Neuroscience may have had its origins in them. In fact, with the passage of time and the development of sophisticated technology, philosophers are now in a dire need to have more knowledge about various other [and unexpectedly from their point of view, to solve many of the age-old philosophical riddles that they think are reserved only for that domain] disciplines. Such and other similar-minded views have helped a new discipline called Neurophilosophy to come into existence.2 If, on the other hand, at any time in future it is proved beyond doubt that there exists something called Mind, and it controls the human brain, then philosophers [more so the Idealists] can call the attempts at Artificial Intelligence and Thinking Machine as dreamy and reject them as what Rudolph Carnap and Carl Hempel would have called as pseudo problems. Having stated the relevance and significance of the issue of mind to that of Artificial Intelligence, now let us try to dive deep into the problem. The very fact that numerous theories have been put forward over the period of two thousand years [and classified into handful of
philosophical 'positions' (?!), and yet the solution to this problem is not in sight is a clear indication of the hard task that lies ahead.

I feel that a somewhat different approach might help us in handling the task at hand. Often one can come across in the accounts of philosophy of mind, nothing but dry discussions on the formalised philosophical 'positions', that Carnap would have dismissed as therapeutically. Therefore after a brief formal discussion on the above mentioned 'positions', let us try to seek possible solutions from various corners of the intellectual arena. I call this method as Approach Nouveau. I call it in that way not only because some daring suggestions are made but also to indicate that the philosophers across the world should come out of the shell [it should be mentioned here that there are quite a few who have done so in the recent past and I would like to mention that the works of Patricia Churchland, Margaret Boden, Richard Dreyfus, John Searle and Daniel Dennett as most outstanding in this direction. Various other works are also being consulted]. Thus we will be proceeding to discuss the concept of mind as expounded in 1. Mythologies 2. the philosophy of 'vital link', (in this chapter) and 3. Various sciences (in the next chapter).

By 'vital link', it is meant here the philosophy of mind as expounded by the incredible Greek trio of Socrates, Plato and Aristotle and also that of French Philosopher Rene Descartes. I have chosen the term 'vital link', because in my opinion it is only Socrates, Plato and Aristotle who systematized the brilliant treatises scattered
through numerous mythologies. By systematizing and philosophizing, they gave shape to the stray thoughts found mingled with superstitions and intuitive, yet brilliant notions. They bound the free thoughts of their predecessors with the rigor of logic and reason and coated them with the elegance and beauty of metaphysics. Thus they made independent ideas into a systematic science. In this sense they served as a link between Mythology and Philosophy. By handing over to the humanity systematic ideas on mind and its relations to body, they opened the floodgates of the intellectual arena and transformed the homo sapiens from awe-inspiring nature worshippers to philosophical giants. So, not surprisingly, it is their ideas that dominated almost every discipline of human knowledge till last century and is still having a prominent place in some.

If this Greek trio was a link between mythology and philosophy, then the seventeenth century French philosopher Rene Descartes can be conceived as a link between philosophy and science [understood in the modern sense]. By applying strict logic and rigorous method of 'doubt', it was Descartes who was the first philosopher to go on to explore the ontological status of mind and body. Despite his failure [because of the error in trying to latch onto pineal gland as if possessed] to solve the problem of relation between mind and body successfully, he was the first thinker to attempt [systematically] to trace the feelings, thoughts and consciousness in the human brain. However frail and flimsy the final outcome of Descartes' arguments might have been, he was chiefly instrumental in inspiring the physicians of his time to
explore the human brain thoroughly to know more about human nature. This led to
the new channels of thought unexplored hitherto and I, despite being wary of the
future attacks by the historians of medicine, believe that it was Descartes who
single-handedly changed the direction of centuries old belief that brain functions only
as a cooling device [modern kids would like to butt in: "Air conditioner on top of the
house"], an idea allegedly came from the mind [or brain ?!] of Aristotle, to the
possibility of brain as an entity containing the seat of consciousness.¹

In the next chapter concerning science, those viewpoints expounded by the
contemporary scientists but invariably influenced to a great extent by the science of
the day, especially the post relativistic and quantum era, will be discussed. Prior to the
dawn of Quantum physics, even in Einstein's period, mind played hardly any role in
science, and even if it did it held only a peripheral interest to scientists. In addition
to that, during that period classical empiricism was holding sway. But with the advent
of Quantum Theory even materialism seems to have, to put it in a Popperian
style, transcended itself. ² Thus we come across to the astonishment of many
conservative physicists, questions such as Are electrons conscious? and discussions
on Quantum self and Quantum Aesthetics ³ something that is unthinkable, leave
alone possible in classical physics. And in the opinion of some thinkers that Science
has at last found the underlying unity of the Universe with the help of the Quantum
Physics. They talk, not about, Homo Faber but Homo Spiritualis and talk of Mind or
Spirit as the Fifth dimension of science.⁴ Thus we will discuss in threadbare such
views in our quest to find solutions to the Mind-body problem. Then we will listen to the
Computer scientists and researchers of Artificial Intelligence on their views on Mind.

The domain of the present work is Artificial Intelligence and to be fair with some of
the researchers in the field, their views do not appear to be anachronistic and at odds
with the conventional notions. Infact some of them offer a fresh and strikingly original
approach to trace the Mind. Then there is a series of remarkable experiments
conducted in the last four decades that seriously challenged the very notion of mind
as an entity separate from the physical body. They too play a significant role in
one's attempts to discover the nature and the functioning of the mind.

With this search in various corners for a possible solution to the mind-body
problem, we are aiming to arrive at a possible and integrated solution to this vexed
problem. Even if we do not arrive at such a solution, I hope that we would have
atleast found out the possible routes or approaches that are most likely to lead us
to unearth the nature of mind. We may also find out whether it is ever possible
for us to know mind with the help of our reason or would the mind lie forever beyond
the reaches or bounds of our intellect.

This way of approaching the problem is not to belittle the contributions
of formalised philosophical positions nor is it an attempt to reject such an approach.
Instead it is one more way of approaching the problem at hand. It is also true that
the theories or philosophies contained in the formalised positions are also attempts
to offer or search for possible solutions. Mere discussions on merits and demerits of
formalised positions in the past have not led the researchers to any plausible solution.
Rather it has resulted in a stand-still of matters with thinkers unable to break the impasse. On the other hand if each and every philosophical theory on mind-body problem is taken up and dealt with, then such a compilation would be a mere history of ideas rather than a genuine philosophical discussion.

Coming to our central theme, most of our discussions on mind-body problem end up as futile, fruitless and vague discussions. I am afraid, because they have the tendency to fall at one stage or the other into a trap of what Rorty calls as *Philosophical language game.* Most of the philosophers succumb to the temptation of giving explanations or descriptions of what they feel as mental in terms of physical things or events or the terminology describing such events or things. The attraction to do so is enormous, but anyone who wishes to venture into such attempts should also remember the fact that we hardly possess the same amount of knowledge of what is mental or mind as we possess of physical. This is not to say that we can never know the Mind nor should anyone ever attempt to explain or describe what is mental. What I am trying to stress here is that let us not commit *Category Mistake.* This observation naturally takes us to the age old question of the validity of the distinction between mind and body. But now let us set aside this issue and take up the discussions on what I earlier termed as Classified positions or Formalized positions. The possible answers to the basic questions such as ‘how are two apparently distinct entities such as mind and matter interact?’ by various thinkers have been grouped under

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various headings in the past, for convenience sake. To develop this discussion, an analogy from Leibnitz may be more than quite handy here. However, to avoid any confusion ambiguity let me quote Leibnitz who wrote the following in The Principles of Nature and Grace (1714) in a fuller extent: *

Now, this may take place in three ways. The first consists in mutual influence; the second is to have a skillful workman attached to them who regulated them and keeps them always in accord; the third is to construct these two clocks with so much art and accuracy as to ensure their future harmony. Put now the soul and the body in the place of these two clocks; their accordance may be brought about by one of these three ways. The way of influence is that of common philosophy, but as we cannot conceive of any material particles which may pass from one of these into another, this view must be abandoned. The way of continual assistance of the creator is that of the system of occasional cases; but I hold that this is to make a Deus ex Machina intervene in a natural and ordinary matter, in which, according to reason, he ought not to co-operate except in the way in which he does in all natural things. Thus there remains only my hypothesis -- each of these substances of such a that merely by following its own peculiar laws, received with its being, it nevertheless accords with the other, just as there were a mutual influence or as if God always put his hand there to in addition to his general co-operation.

The foregoing passage from Leibnitz is considered as the best analogy to explain interactionism. But let us go beyond this and use this two-clock analogy to explain all the major theories of mind-body interaction. It may be argued that some of the major theories cannot be explained with the help of this Leibnizian Synchronized Clocks, since it supposes or assumes that the mind and body are different and separate from each other. But I feel that one need not stop with analogies.
Innovation and originality lies in the author’s ability to build upon the given. Thus by taking the leaf out of Leibnitz, let us extend it by supposing the two processes in the place of two clocks and name the first one as M and the second as P. So, now let us proceed to discuss the theories with the help of these two processes, M & P, starting with the Dualistic before proceeding to Monistic theories.

Interactionism is the thesis that mental events can sometimes cause bodily or physical events and also that bodily events can sometimes cause mental events. Thus M and P are causally linked with each other in both ways. That is, M can influence P and P can influence M.

\[ \begin{align*}
M \quad \quad & \quad \quad \quad \quad M \\
\text{\textdagger} & \\
\quad \quad & \quad \quad \quad \quad P \\
P \quad \quad & \quad \quad \quad \quad P
\end{align*} \]

Though interactionism existed for a long time therefore Descartes, it was he who gave its classic formulation. But, in doing so, he also dropped a hot potato in the form of now his notoriously famous [infamous?] mental substance theory into the hands of his followers. And his followers and all those who wished to sympathise with interactionism were left with the dilemma. This dilemma is being continued to this day. Thus we see time and again the ghost of Descartes’ mental substance bouncing through the back door, at times with the labels such as mental event or mental process. Many objections were raised against interactionism in general and Descartes in particular. But not all of them are serious and have been countered very easily in the past by the
interactionists. However one argument catches the eye. According to this argument the mental events as causes may be highly superfluous. "Mental events may be not causes of physical events but only symptoms of underlying physical events that are the real causes." 

The theory that mental and physical events are correlated in a regular way but without any causal link, both direct and indirect, is known as psychological parallelism. Thus, M and P run together never influencing each other.

M --------------- M

P --------------- P

The basic assumption and the motive of this theory is very clear. It assumes that body and mind are entirely dissimilar both in their structure and function. The main motive of this theory is to avoid the difficulties that haunt the dualists especially interactionists. Then, how do these two entirely dissimilar events M and P affect each other, a fact that cannot be denied so easily? "Deciding that causal connection is impossible, the parallelist holds that every mental event is merely correlated with some physical event(s) in such a way that whenever the former occurs, then in fact the latter does also." By positing such an odd view that correlations of M and P are accidental, I am afraid, parallelism went against the entire world. It failed as a plausible explanation because it was at variance with the rest of our empirical
procedures. If such uniform correlation of a whole range of events in the world are sheerly accidental and take place only by chance, then we should admit that even the events taking place within the domain of science are also taking place only by chance. This is to dangerously undermine Science. We saw that an objection was raised against interactionism that mental events as causes are superfluous. Such and other related objections can be traced to an old but still attractive theory called Epiphenomenalism. According to Epiphenomenalism, M and P are causally linked no doubt, but the causal connection goes only in one direction. That is always from P to M and never from M to P.

\[
\begin{array}{c}
\text{M} \\
\text{P}
\end{array}
\]

No doubt the Epiphenomenalists accept the existence of mind, but only as far as . . . and is, so to say. Quasi-physical. Many objections have been raised against this theory as well. But I am afraid that we need not accept or reject this theory because we are not in a position to do so. For our knowledge of the physical events is incomplete, leave alone mental. Let us reserve further comments on this theory as well as materialism and identity theory till the end. Before proceeding to monistic theories, a word about the relevance of epiphenomenalism. Though identity theory or reductionism appear to be closer to the projects on thinking machines, actually it is epiphenomenalism that lies implicit in the heart of theories on Artificial Intelligence. Despite the obvious weakness in the epiphenomenalistic argument it is one of the very strong and formidable theories on mind.
A version of materialism that is much discussed at present is the so-called identity theory. Formulated in terms of de facto identity rather than logical identity, a more recent version of this theory has been presented and defended by J.C. Smart and H. Feigl among many others. The identity theorist uses the familiar philosophical distinction between significance and reference or connotation and denotation, to make the claim that mentalistic and physicalistic expressions differ in significance or connotation, but will turn out as a matter of empirical fact to refer to or denote one and the same thing, namely physical phenomena. Other examples of this kind of de facto identity are the morning star and the evening star and water and H2O. Hence though one may perceive both M and P in reality it is P which is more significant and real than M and M is nothing but a small subclass of P.

Now, having said that, let us consider Leibnizian "A is identical with B" -- that implies that any property of the object A is also the property of the object B -- with the identity of the above mentioned position. Then we will get some statement like mental processes are identical with certain kind of brain processes. If this is what the advocates of the identity theory assert [1, in the lines of Popper doubt very much how many of them will], then I am afraid they have simply ignored the essence of what is mental. Moreover the results of the recent experiments in medicine have something to say that is incompatible to the beliefs of these advocates. Moreover, no convincing reply has been given till date to the assaults of the Jarvis Thomson and Saul A. Kripke.
Identity theory in some of its versions is very old. We come across it in Diogenes. It almost takes the form of Panpsychism in Spinoza 15 who stresses that "... the order and the connection of (mental) ideas is the same as (or identical with) the order and the connection of physical) things." He goes further and explains that mind and matter are two different ways of comprehending one and the same substance, which he calls Nature or God. Here, Spinoza by the same substance more or less means what Kant called as a thing in itself. "This theory -- a parallelism between mind and matter, explained by their being two aspects of a thing in itself -- is, I suppose, the beginning of the modern physicalistic identity theory which replaces "Nature" by either "mental process" or "physical process" and which restricts the identity thesis to a small subclass of material processes: to a subclass of the brain processes, which it identifies with mental processes." 16 It is quite surprising that this parallelism [or two-aspect theory] of Spinoza is often referred to as an identity theory rather than as a parallelism. The distinguished nineteenth century neurobiologist John Hughlings Jackson makes a three-fold classification in which what he calls as Identity Theory closely resembles what may be termed as Spinozism. 17

The "Psychophysical Identity Theory" advanced by Herbert Feigl deserves a special mention here. It differs from other theories in that it attempts to avoid falling into the trap of being a sort of parallelism and in aiming to overcome the implausibilities of epiphenomenalism. It stands out from its companion theories in that it accepts the mental phenomena as real. For Feigl, following Schlick [and Spinoza
too? Mental phenomena are like Kantian things-in-themselves. It will be interesting to note that Kant himself might have got in his mind an idea that "the thing-in-itself may be of a mindlike character." Thus we see clearly the lineage of this form of identity thesis being passed on by Kant to Schopenhauer to Schlick to Feigl and Russell. This parentage of this particular kind of identity theory has been discussed by Feigl in his *Russell and Schlick* and by Feigl and Blumberg in the *Introduction* to Schlick's *General Theory of Knowledge*. Inspite of our viewing this psychophysical identity theory in this way, it must be admitted that this theory of Schlick and Feigl is somewhat different in character in comparison to the earlier views, especially that of Clifford, that were more akin to Panpsychism. "The Identity Theory of Moritz Schlick and Herbert Feigl shows a certain similarity to panpsychism, although they do not seem to discuss the evolutionary aspects of the problem, and therefore do not say that the "things in themselves", or the "qualities" of non-living things are pre-psychical in character." 

It may be pointed out here that this theory enjoys an advantage that the mental processes do not play the objectionable role of redundant epiphenomena. However, it is conjectured by the advocates of this theory that they are identical with a certain subclass of the physical processes that occur in our brains. This is the central conjecture of the theory.
Recently Karl Popper has attempted to assess and sum up the essentials of this theory by appealing to the famous cloud metaphor. "It consists, physically speaking, of an accumulation of water vapour, that is, a region of physical space in which water drops of a certain average size are distributed with a certain density. This is a physical structure. It looks from the outside like a white reflecting surface; it is experienced, from the inside, as dull, only partially translucent, fog. The thing as experienced is, in theoretical or physical description, identical with a structure of water drops." 25 Probably Popper derived the inspiration and perhaps got the analogy from U.T. Place. 26 According to Place the inside and outside view of the cloud can be compared with the inside or subject in experience of a brain process and the outside observation of the brain. Despite the reality [?!] of mental processes, I think, critical remarks can still be levelled against this theory. Like other theories, it fails to offer a satisfying solution to the problem. For it is, by intention, a purely physicalistic theory. Its fundamental principle is still the principle of closedness of the physical world. Thus any explanation should be, if it is to be satisfactory, strictly in terms of physical theory. Thus despite its boasting that it asserts the mental reality it fumbles at the crucial step and looks (in the eyes of extreme materialism) more pathetic than epiphenomenalism.

Since we will be discussing some of the various forms of the other two monistic theories, namely, Materialism and Idealism, let us not discuss these issues in detail at this juncture.
Materialism has many versions, but, for all of them, matter is fundamental and whatever else exists is dependent on matter. The most extreme variant of materialism is that whatever exists is physical and hence all the descriptions and explanations of things or events or processes should be only in the lines of physical laws. Thus according to this position only P exists and whatever description or explanation of M are false. As we shall see soon, even before Greeks there existed one form of materialism or other. And then came the most incredible machines devoid of all mental events. Interestingly, it is the discussions on the philosophy of materialism that, as we shall see more elaborately later, have brought the materialism to the boundary of consciousness or mind.

Having stated that let us move next to discuss another extreme [and solipsistic?] idea namely Idealism. For Descartes, the only thing he could not doubt was the existence of his own mind. Berkeley went one step further and maintained that only the mind and perceptions of such minds exist; to be is either to perceive or be perceived. The entire physical world exists only in the mind. This idea, known also as subjective idealism, took various forms in the post-Kantian era with most of them attempting to describe Reality as a single all embracing consciousness [superconsciousness ?].

Let us wind up this subsection by noting that none of these traditional philosophical positions were able to offer a stable and acceptable solution; because of
this, there have been numerous attempts to prove that it is a pseudo problem, but none of them have withstood criticism and scrutiny. However, I would like to venture into this issue and declare by taking a clue from Gödel that over the period of years this classified positions have become [at least in a crude sense] closed formal systems. Many may not like and accept this analogy [whether Gödel's proof can be extended to other realms is a different question and we will be touching this subject in Chapter IV], but I feel that this suggestion is quite acceptable. All the classified positions have axioms and they try to prove or aim to prove their theorems. Let us also surmise that for the advocates of the traditionally classified positions, mind is the proposition G which is undecidable within the system. This is not however to refute these theories or positions. While keeping intact these 'positions' [and also these philosophies that get bound and constitute these positions], let us look at various disciplines for a possible solution(s) for this undecidable proposition which we shall call as MI.

2.2 Mind in Mythology

It is quite unusual to have a full fledged discussion on mythological accounts in a philosophical thesis. But mythologies are very important and they occupy a very vital place in human history. Human thought in general and science in particular are the products of human history. The greatest achievements of humanity lies in the past. It is our ancestors from the unknown and hoary past, who invented the language and use of tools. They discovered consciousness, mind and found out that all the human beings
have to die. They did not stop with merely acquiring the knowledge - knowledge about themselves and knowledge of the external world including their own body which is also part of the external world. Instead they passed on the knowledge to posterity. They passed on this knowledge through tales, folk lore, and mythologies. Thus mythologies are -- at least in one sense -- responsible for what our being today. However this is not to go back in time instead of advancing and succumb to the claim that we still live in myths. Rather it is an attempt to trace the ways in which they moulded our ways of thinking. "Our fundamental ways of thinking about things are discoveries of exceedingly remote ancestors, which have been able to preserve themselves throughout the experience of all subsequent time."  

Myths and religious beliefs have long been rejected as a set of superstitions, without studying them carefully. Myths and religious beliefs are nothing but attempts to explain theoretically the world around us - including societies and processes - and how the world may affect us. Myths are attempts to grasp reality in its wholeness and hence often they [and almost all of them] are not philosophical ideologies. Viewed in this sense even today we are [in fact at every period men have lived comfortably with myths] living in the midst of mythologies -- highly systematized mythological accounts with some repeatable experiments to back them.
Thus, Descartes' substance theory is very much a methodological account as Homer's is and why, even quantum physics is a grand mythological explanation, untainted by the vagaries of human mind. In the ancient mythologies, of course, many are exaggerated and are the result of the free play of wicked human mind. But, "some of these doctrines are no doubt hypostatizations, and they have been or may have to be, modified by criticism. Others are mistaken. Yet they are nearer to modern views and modern problems than the pre-Ionian and even the Ionian theories of matter, though admittedly this may be due to the primitive character of our modern views about consciousness."32

Coming to Babylonian Myth the striking feature is their world view with the lack of distinction between the living and non-living. Objects are talked to just as people are talked to and in this way early Sumerians sought help or advice from Nature. There is a deep sympathy with Nature and phenomena were seen to have their own wills.

There is no clear philosophy of mind in the Sumerian thought, probably because they did not exorcise mind from nature. Mind was conceived as part of the Man's body just as the same way they thought of life as embedded in the ribs! Observation and experiment, the two principles essential to science and that were thought hitherto to have been used systematically only since Socrates can be traced in the early Sumerians. They were concerned with the positions of the planets and
appearance and non-appearance of the heavenly bodies. For they believed that these planetar motions caused abnormalities in human mind and changed the course of every individual's life. Hence they studied planetary motions and made elaborate calculations including time scales. A final note on Babylonian Mythology: They lived comfortably synchronizing the incompatibles; the process which the physicists proudly claim to have been brought to us by the dawn of quantum physics! Many ideas in the Sumerian accounts closely resemble the classical empiricism and many of the Sumerians believed that [though it does not seem to be very clear, may be due to lack of systematic accounts] knowledge can be attained only through observation. Thus we find the wonderful combination of the methods of measurement construction that were conceived as the ones that transformed the world and the idealistic treatments of reality and anthropomorphic accounts of God. This compatibility of two seemingly opposing trends, was possible for Sumerians which, we, brought up in the lap of modern technology find it very difficult to accept. This is so, I think, due to the difference in our world views and attitude towards nature. The fundamental difference between the attitudes of modern and primitive men towards nature boils down to the fact that, while for modern man the world around him is primarily as I, for an ancient man it was a Thou.

When compared with any other mythical accounts, Egyptian ideas were more complex and confusing. Confusing because the mythical ideas enunciated by the forefathers of that land remained constant for over a period of twenty centuries and
the same chief of Gods and names appear on the tombs and papyri throughout this period. Due to this there are several conflicting accounts of the mind. It is possible for anyone to come across a particular theory of mind having numerous variations and occurring in more than one place. Hence to avoid any difficulty it is better to give one single account of the Egyptian concept of mind.35

For Egyptians the heart was the seat of the mind. For them mind was not a single entity but numerous. "The whole man consisted of a natural body, a spiritual body, a heart, a double, a soul, a shadow, an intangible ethereal casing or spirit, a form and a name." Egyptians more than anyone else in the ancient west, were concerned more with the analysis of psychical being and personality or individuality. Ka was an abstract individuality or personality and had independent existence. It had the nature of moving from place to place. In addition to this individuality, Egyptians also had an eternal abstract entity called ha which may be roughly translated into soul. What is surprising is the fact that over such a long period of time these set of beliefs were hardly questioned. When one takes into account of the fact that it is the same Egyptians who contributed however insignificantly, to the growth of knowledge in the ancient time, especially in the disciplines of mathematics, astronomy and medicine. It is also interesting that Egyptians gave little importance or significance to the human brain. The very fact that the Egyptians did not embalm the brain suggests that Mind, for them was in no way connected with brain.
Early Greek writers gave us both myths and their significance for life and also criticisms [which I think clearly separates Greek mythology from others in the ancient west]. The earliest expressions about the mind can be traced in the poems of Homer. He was regarded as the supreme poet, with highly important things to say. Many who came after Homer firmly believed that Homer at numerous instances had used an "indirect language" to convey various realms of reality and there was [even today some exist] a consequent tradition of followers looking for hidden significance or meanings into Homer.

Homer discusses mind at many places and in fact there are numerous words for the mind or soul. Homer's concept is somewhat a materialistic-cum-dualistic concept of mind. It can be asserted that the concept is materialistic because of the notion of extended soul that lies latent in Homer's verses. If we accept the cartesian idea that matter is characterised by extension, then Homer's is a materialistic account, no doubt. But since, a distinction is made between a ghost like soul and matter in that the soul is less materialistic than matter it is dualistic. It is considered as the finest material, like vapour, like breath, like air, so to say. We have already stated that we will not be engaging ourselves in any verbal issues. There are three words that deserve attention and they are used frequently in Homer to describe mind or soul and its functions, the processes of consciousness, as Onians calls them. The first is Thymos the principle of life, an active, energetic and thinking material related to blood. Thymos leaves us when we die. Although after Homer the term was restricted in usage to mean such as courage,
energy, spirit, etc., in his works it is always a stuff of life. The second is *Psyche*. *Psyche* means a sort of principle of life in Plato and Aristotle. But in Homer, it is "rather the sad remainder which is left over when we die, the poor unintelligible shade, the ghost that survives the body...". It may be conceived as an impalpable semblance of the once living body. For Homer only the living body is a fully conscious self. Finally there is *noos*, which may be translated as mind or understanding. In Homer, it is a mind with intention, a purpose and is capable of understanding situations. Onians calls it as *purposing consciousness*.

We mentioned these terms here because it is often asserted that Greeks before Socrates were not aware of the distinction between mind and body nor were they aware of a distinction between consciousness, mind, etc. These three words and their usage in Homer is enough to prove that presocratic thinkers were very much aware of various psychical states and distinguished between them. Coming to dualistic idea of mind, some thinkers have even gone to the extent of denying the existence of dualism before Descartes. However some of the passages in Homer prove otherwise. For instance consider the following: "They had the head, and voice, and bristles, and the body (demas) of swine; but their mind (noos) remained unchanged as before. So they were penned there, weeping ...". This is very much clear enough to prove that dualism existed in Homer. There are other passages that prove that even the polarity of mind and body existed in Homer. Consider the following: "Know you, I prefer her to Clytemnestra, my wedded wife, as she is no wit inferior to her, neither in body or its bearing, nor in her mind nor in its accomplishments."
There is abundant evidence to prove that dualistic and interactionistic beliefs are very old. "Apart from folklore and fairy tales, it is supported by all we know about primitive religion, myth and magical beliefs. There is, for example, Shamanism, with its characteristic doctrine that the soul of the Shaman may leave the body and may go on a journey; in the case of Eskimos, even to the moon."\(^41\) In that state the body is left alone in a state of coma and survives without food. "In that condition he is not thought, like the Pythia or like a modern medium to be possessed by an alien spirit; but his own soul is thought to leave its body...\(^42\)

Then we come across Anaxagoras who declared that "Mind rules the world and has brought order out of confusion". He conceived matter as seeds present in various forms but it was impure. For Anaxagoras only mind alone was pure and only mind is that which starts creation. In the beginning everything contained mind but as the cosmic centrifuge separating the elements grew, the world became more mechanical and this cosmic centrifuge left matter free of mind except for living things. Mind is the same, for Anaxagoras, in all living creatures. For him, only hands are that which distinguishes man from other animals. He also describes mind as a source of all motion [a sort of Prime Mover] and is not structured as physical things are:\(^43\)

All other things have a portion of everything, but mind is infinite and self-rulled, and is mixed with nothing but is all alone by itself. For if it was not by itself, but was mixed with anything else, it would have a share of all things if it were mixed with any; for in everything there is a portion of everything, as I said earlier; and the things that were mingled with it would hinder it so that it could control nothing in the same way as it does now being alone by itself. For it is the finest of all things and
the purest, it has all knowledge about everything and the greatest power; and Mind controls all things, both the greater and the smaller, that have life. Mind controls also the whole rotation, so that it began to rotate in the beginning. And it began to rotate first from a small area, but it now rotates over a wider and will rotate over a wider area still. And the things that are mingled and separated and divided off, all are known by Mind…. Mind arranged them all, including this rotation in which we are now rotating the stars, the sun and moon, the air and the aether that are being separated off. And this rotation caused the separating off. And the dense is separated off from the rare, the hot from the cold, the bright from the dark and the dry from the moist. But there are many portions of many things, and nothing is altogether separated off nor divided one from the other except Mind.

I have quoted Anaxagoras in full, not only to avoid any confusion and to explain his ideas thoroughly, but also to point out that he was one of the last thinkers to provide a grand mythological doctrine of soul and mind. For, by that time people were aware of how to systematize their ideas and present them in more sophisticated logical framework. Thus the views of Pythagoras, Democritus, Leucippus, Empedocles, Thales and the others can be treated as the first philosophies of mind than the ‘mythological’ accounts. Their views were not only systematically presented but were also open to criticism. This is the most significant step in breaking away from mythological thinking. In addition to this, their philosophies were not the ones that were presented for the first time. They added their own ideologies to the existing ones and presented the old theories in a newly systematized form. To this line of thinkers the great Pythagoras can also be added despite the fact that he was adored by Bertrand Russell as "intellectually one of the most important men who ever lived, both when he was wise and when he was unwise," and his alleged self-proclamation that "there are men and beings like Pythagoras." There is one exception to the above list, Hippocrates, founder of medicine in the West. We discuss Hippocrates at the end of Greek mythological accounts not because his ideas were mythological accounts but only for convenience sake. He was the contemporary of
Socrates and was the first physician [!] to combat the superstitions regarding the medicine especially the sacredness of epilepsy.

He was the first thinker to recognize brain as the seat of mental life. This he inferred from the effects of accidental brain damage, and from his remarkable studies of epilepsy. Thus in Hippocrates we find the forerunner of the modern attempts to trace mind and mental life in the very processes of human brain. He also regarded the liver as very important, stating the theory of tumors which dominated medical and psychological thinking about personality for more than two thousand years. He forwarded his version of anatomical account of veins and that of winds. For him some winds are good and others are bad. Hippocrates held that these winds as responsible for causing changes in the man. But he held brain as the interpreter of consciousness and considered brain as the most important organ in the human body: 46

In these ways I hold that brain is the most powerful organ of the human body, for when it is healthy it is an interpreter to us of the phenomena caused by the air, as it is air that gives it intelligence. Eyes, ears, tongue, hands and feet act in accordance with the discernment of the brain in fact the whole body partici matizes in intelligences in proportion to its participation in air. To consciousness the brain is the messenger. For when a man draws a breath into himself, the air first reaches the brain, and so is dispersed through the rest of the body, though it leaves the brain its quiescence, and all that it has of intelligence and sense... Wherefore I assert that brain is the interpreter of consciousness. The diaphragm has a name due merely to chance and custom, not to reality and nature, and I do not know what power the diaphragm has for thought and intelligence.

Now, there is an interesting reference in the second paragraph to the diaphragm [In Greek both for diaphragm and sensation the same word is used], and this reference might be the result of sensations from the diaphragm of which he says, "... if a man be unexpectedly over-joyed or grieves, the diaphragm jumps and caused him to start." But
this is interesting "... as Hippocrates preferred the brain as the seat of Mind, against the

direct evidence that sensations in emotional states come from diaphragm and the heart,

but never the brain."\textsuperscript{47}

The above are some of the western mythical accounts on the nature of mind.

Later thinkers questioned these beliefs and looked for evidence, ironically, from the
Nature herself, from the world surrounding them. They gave more emphasis for the
experiments and the results obtained from such experiments. As Gregory sums up: "We
may talk of this, and later science, as 'exorcizing myth'; but there are always mysteries
hidden beneath current understanding-and most mysterious of all remains understanding
itself. How can certain lumps of matter-us-at all understand the world, and ourselves?
Ghosts remain where we have still not learned how to question, and so how to
understand in ways that can be shared."\textsuperscript{48}

Before we conclude our analysis of mythology, it will be more than helpful to
have a look at some of the brilliant theories on the nature of mind that occur in ancient
Hindu thought.

The ancient Hindus were the masters of diverse disciplines such as
Geography,\textsuperscript{49} Mathematics,\textsuperscript{50} Astronomy,\textsuperscript{51} Physics,\textsuperscript{52} Biology,\textsuperscript{53} Medicine,\textsuperscript{54}
Chemistry,\textsuperscript{55} Agriculture,\textsuperscript{56} Meteorology and Shipping,\textsuperscript{57} and Architecture.\textsuperscript{58} It is a
wrong notion that is embedded in the minds of people that ancient Hindu sages were
concerned only with God-realization or Self-realization, and they ignored the physical reality. They not only mastered the Nature around them but also had the enormous knowledge of mind and various psychical states. After all, it is our goal to find a plausible solution for the proposition MI.

Before going into the concept of mind as expounded in Hindu Thought, let us observe what are the main features or central elements of it. This is necessary, I am afraid, especially in the light of host of misgivings about the Hindu thought. Rene Guenon, in his masterpiece Introduction to the Study of the Hindu Doctrines, clearly lists what are the possible obstacles that may cause prejudice or bias against the Hindu doctrines and the ones that will make the readers misunderstand the Hindu Doctrines; he elsewhere expounded what happened or will happen to the civilization that has taken this wrong route.

Since Hindu doctrines have numerous aspects and some of them even appear to be incompatible with some others, it is very easy to misunderstand these doctrines as a whole and reject it. This is where Guenon’s warnings should be taken into consideration. To illustrate this point let us consider what Richard Gombrich has to say about Indian Cosmology:

"... why is Indian cosmology so complicated? Just as the Indian system of social organization, caste, has grown throughout history by aggregation and inclusion ... so Indian Cosmology -- which remained largely a branch of Indian mythology -- rarely abandoned a theory or idea, but allowed it to remain alongside the new ideas even if it was inconsistent with them... . We are about to meet a Universe of Chinese boxes... ."
Gombrich's thinking represents a whole lot of others who have fallen into the trap which Guenon called as an obstacle to the study of Hindu doctrines.

The main feature of the Hindu thought is that there is no such distinction as between mythology, philosophy and science. They have co-existed with each other for more than four thousand years.

This aspect of co-existence emerges mainly from Hindu concept of darsana. "There can be no ready-made solutions and one has to 'perceive' and get the solutions for oneself. In this sense there is no 'system' or 'school' of Indian philosophy, but only a 'view' or drsti or transcendental insight. Indian philosophy is a darsana, an elaboration of truth which has been 'seen', experienced and felt. It is not a philosophia, a search after truth, but an elaboration of it as experienced, an intellectual indication without a conceptual fixation of what has been 'seen' or 'intuited'. Two words darsana and anviksiki, used in Indian philosophy, reflect its nature quite well. What is provided by darsana, a spontaneous, presuppositionless and creative intuition is vouched by anviksiki, a critical examination of the data provided by such a perception or vision. The term darsana stands for not only an insight but a standpoint as well."*62

Another main feature of Hindu Thought is that it is not a closed system. However formal it may be at times, it is not a closed system. That is why over thousands of years we have seen many ideas, theories and philosophies from various corners of the world, from various cultures being accepted into Hindu Thought and this continuous process of assimilation has enabled the whole system of Hindu Thought to produce a continuous stream of new philosophies or theories. Thus to use the Chomskyian phrase, Hindu doctrines are open ended.

Hence the perception of Gombrich and the likes is wrong. Since the whole of
Hindu Thought is nothing but a collection of "standpoints" or 'perceptions' there is no room for a logical contradiction in mythologies, philosophies and scientific accounts co-existing together. Hence there is no necessity to abandon any one of them. This viewpoint is more scientific, especially after the recent advances in Science in the light of quantum physics, than the classical or traditional viewpoints.

Having mentioned that, now let us proceed to discuss the concept of Mind as found in the Hindu doctrines. But, I have to confess that it is beyond the scope of the present project to discuss in full detail even one of the theories nor will it be feasible to narrate, however briefly, the concepts of mind as expounded in all the subsystems of the darsanas. Instead, we will be attempting to trace the common link among various darsanas.

The first and foremost principle that is common to all darsanas is that Self and Mind are not the same. They are different. This is also the primary difference between Western and Hindu [for that matter most of the Eastern] philosophies. Viewed in this sense, the problem of mind-body exists in the Western Thought primarily because it distinguishes body and mind on the one hand while equating mind with the self on the other. Whereas for Hindu doctrines the problem does not exist since such a distinction and equation is not made. "Indian philosophers, from the very beginning, have avoided this pitfall by recognizing mind or manas as something distinct from the self or the Atman, though partaking of its nature as intelligence through association with it."53

Another idea that is common to all the darsanas is that they do not exercise mind from matter. Mind is conceived to be a form of matter. It is not a gross matter but only subtle. This conception of mind can be traced in Vedas themselves. [Vajasneya Samhita discusses the concept of mind as a psychical entity in complete detail].54 The idea of Mind as annamayya, a form of matter occurs in Chandogya Upanisad.55 In the Brhadaranyaka Upanisad, we find mind treated as a sense-organ, that is, as an
instrument of knowledge with the physical basis. In almost all the Upanisads, Mind is conceived of as something material. It is as much material as the other senses are. But this materiality of mind is thought to be of different type since Self is reflected in mind. According to Kausitaki Upanisad mind has prajna, because Atman is reflected in it and Atman is of the nature of pure intelligence.

Another striking feature that is common to all darsanas in dealing with the nature of the mind is that mind is always considered only as an instrument of knowledge for the self. The aim of darsanas is always to know that which lies beyond the workings of the mind. The purpose of the Upanisads is to reveal Brahman and a Sadhaka is warned not to be carried away by the manas and its attributes, but should only try to know the mantra. All the principal Upanisads stress the importance of Atman or self and hold Atman as responsible for the activities of the mind. In Kena Upanisad, the question is raised, "Willed by whom does the directed mind go towards its object? ..." and we get the answer "... He is the Ear of the ear, the Mind of the mind, the Speech of speech, the Life of life, and the Eye of the eye, ..." and "The eye does not go to them, nor speech, nor mind. We do not know (Brahman to be such and such); hence we are not aware of any process of instructing about it." In Chandogya, Uddalaka instructs Svetaketu that Mind is like a bird tied up to the Soul. Like a bird flying in all directions, failing to get an abode, mind wanders about hither and thither only to come back and settle down in its resting place. In Katha Upanisad we come across the same Chariot simile that occurs frequently in the Vedic hymns. The simile is used here only to stress the fact that the mind is the internal sense organ directed by the Atman and itself directing the other sense organs. This is the Upanisadic central thesis. According to Mrs. Davids, Indian psychology has taken a different line of development compared to Western psychology, mainly because, from the beginning, Hindu seers have maintained that mind is only an instrument of knowledge for the self. [The picture presented above, clearly presents the Vedic and Upanisadic treatment of mind. The view-points of Saddarsanas are not presented here not only because it is beyond the scope of the present work but also
because they contain only very few minor variants from the Upanisadic treatment depending upon each darsana's peculiar stand point. We also have not ventured into other important and related issues like Theory of Knowledge, Cosmology, Consciousness, the relation between Brahman and Jiva as contained in the Hindu doctrines. The reason for this is that the literature is very vast and unwieldy and concentration has been made only on the concept of mind as contained in the Upanisadic texts. The difficulty of task in hand can be quite gleaned from the fact that even in such an attempt only the presentation of rough picture is possible.

However it should be noted very carefully that just because the ancient sages were concerned primarily with Brahman or Atman, one should not conclude hastily that they lacked knowledge of Manas and its functioning. No doubt the goal is Self, but to know the end one must also know the nature of the means employed. That is why we find various aspects of mind and its workings or functions explained in great detail in Upanisads. However secondary the mind might have been from the Ultimate point of view, the sages were certainly aware that only by the mind one acquires knowledge. Commenting on a particular verse from Brhadaranyaka Upanisad, Sri Adi Sankaracharya proves, arguing negatively, that mind exists and also that it is the most important requisite for knowledge. They were not only aware that mind is a primary requisite for all knowledge, but also analysed, classified and enumerated the psychical qualities and showed that Knowledge is the basis of all activity. Thus we find the following psychical qualities being enumerated in the Aiteraya Aranyaka: Sanjna (awareness), Ajnanam (comprehension), Vijnanam (understanding), Prajanam (knowledge), Medha (retentiveness), Dristih (insight), Dhurtih (resolution), Matih (opinion), Smitih (memory), Manisra (reflection), Jatih (impulse), Samkalpa (will), Krtuh (purpose), Asuh (life), Kanah (desire) and Vasah (control).

Later in the same chapter it is maintained that "man is superior to animals because
of his capacity to anticipate the future and remember the past. * Man possess this capacity only because of the Mind! Surprisingly we find the same line of thought in Bergson, who says "Consciousness means before everything else memory. ... To retain what no longer is, to anticipate what as yet is not - these are primary functions of consciousness." 78 and Drake "It is a past event that I am remembering or a future event that I am anticipating; i.e., the object of my awareness, my datum... "78 Having traced the psycheical qualities and enumerated the functionings of mind, it is but natural for one to try and locate mind. Upanisads place the manas in the heart. Altareya Upanisad says, "... from the heart issued the internal organ (mind) ; ... "80 Gautama is more general and concludes that mind lies within the body. 81 But Uddyatokara differs from Naivyikas and says that it should be interpreted to mean only that mind without body does not accomplish any purpose of man. 82 But whether this upanisadic location of mind in the heart should be taken literally remains a big question. If it is a physical heart from which mind is said to emerge, then, the host of arguments against mind being contained in the body and being conceived as an organ of it would not have emerged at all. This controversy has arisen again in the philosophy of Bhagavan Sri Ramana Maharshi of Tiruvannamalai in the recent time. Regarding the position of Hrdaya, he says "Quite so. The physical organ is on the left; that is not denied. But the heart of which I speak is non-physical and is only on the right side.... you can find confirmation in a Malayalam Ayurvedic book and in 'Sita Upanishad';... "83 He adds further that "The Heart is not physical; it is spiritual. Hridayam = hrit+ayam = This is the centre. It is that from which thoughts arise... "84 And he being a Saint in the Vedantic lines, Ramana always considered that Mind does not exist85. Ramana's thought has been presented here only to point out once more that how the Hindu doctrines can contain the seemingly paradoxical and opposite view points. To conclude: "...irrespective of the metaphysical theories, all the astika darsanas of Indian thought conclude that mind cannot be identified with the Self who is the knower... There is little difference of opinion amongst all the orthodox systems of thought as to the proof of the existence of mind. Almost all of them make use of inference to prove that mind exists, and to all of them it is material and unconscious. "86
The foregoing is but a few pages out of the Grand Book of Mythology. I have devoted much attention to mythology, primarily because of my conviction that mythologies are equally important and relevant to the human society as science and technology is. Moreover, mythologies are nothing but the description of the Grand Perception of Nature, Grand because unhampered by the vagaries of logic and reasoning nor by the madness of method and scientific bias.

How the mythological beliefs become scientific and critical still remains a mystery. So, now let us proceed to take a brief look at the trio of philosophers who gave shape to the scattered mythological treatises [despite their philosophy itself being highly mythical] and soaked them into the domain of logic to give them a scientific temper. That is why I have called the philosophical theories of this trio as a 'vital link'. But for them, the scattered and confusing mythological accounts would have remained even today what they were thousands of years ago.

2.3 Vital Link

Just as Descartes' method of doubt was the beginning of modern epistemology, so the skepticism of the sophists raised the problems for the Greeks. Two people opposed them and they were Socrates and Democritus. Democritus opposed them with the capons of physical science, but Socrates abjured physics and turned to logical and metaphysical speculation. Both these philosophers distinguished between true and apparent knowledge and identified the latter with sense perception; but while Democritus gave a mechanical account even of true knowledge, Socrates taught that the real objects of knowledge are immaterial and purely intelligible, and that the soul which knows them is akin to them, -- a purely spiritual entity, whose perfection and essential nature lies in the cultivation of wisdom and virtue, qualities which he found to be identical to each other.
Socrates was the first Greek philosopher to combine the Orphic with the human conception of soul -- the first to combine the idea of the soul as the normal waking consciousness with that of a divine and spiritual being distinct from the body and from all material existence.

Before going further into Socratic thought, a very important issue can be pointed out here. How have we come to know Socrates' philosophy? Certainly not through his writings. For he did not write, probably out of his deep conviction that writing does no good to man and that it destroys memory. Two of his pupils, Plato and Xenophon, wrote voluminously on him. But their accounts of the man and his teachings differed enormously. Although most of the time he was well presented, Xenophon was at times considered as a man with not much of clarity of thought. For instance, he was praised to see Socrates being accused of impiety and corrupting youth. In his opinion, Socrates was greatly pious and always had tremendous impact on those who visited him. But this line of argument leaves the hostility towards Socrates unexplained. Thus Burnet says "Xenophon's defence of Socrates is too successful. He would never have been put to death if he had been like that." Russell goes even further and says "There has been a tendency to think that everything Xenophon says must be true, because he had not the wits to think of anything untrue. This is a very invalid line of argument. A stupid man's report of what a clever man says is never accurate, because he unconsciously translates what he hears into something that he can understand. I would rather be reported by my bitterest enemy among philosophers than by a friend innocent of philosophy. We cannot therefore accept what Xenophon says if it either involves any difficult point in philosophy or is part of an argument to prove that Socrates was unjustly condemned." **

With Plato the difficulty is of a different type to the one we have with Xenophon. The problem with Plato's accounts lies in the doul: that how far Plato has intended to portray Socrates. It is alleged that Plato used Socrates as a mouthpiece to voice his opinions. Though this allegation had been taken to extremes in the past and

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then vanished as people lost interest in it, it still survives in a latent form till this
date. Russell is not soft on Plato either. "Plato in addition to being a philosopher, is
an imaginative writer of great genius and charm. ... It is the excellence of Plato as
a writer of fiction that throws doubt on him as a historian. His Socrates is a consistent
and extraordinarily interesting character, far beyond the power of most men to invent,
but I think Plato could have invented him." 80

Between Xenophon and Plato, what clinches the issue in favour of Plato is the
naturalness with which Socrates is portrayed, the consistency of events and more
over the presentation of a definite picture of Socrates' ideas that are lacking in
Xenophon. 80

The most striking feature in both Socrates' and Plato's thinking is that both
of them gave much preference to Soul. "It is easier to understand thus since the
distinction between mind and matter, which has become a commonplace in philosophy
and science and popular thought, has a religious origin, and began as the distinction of
soul and body." 81

In Apology we come across the Platonic Socrates professing his faith in
the existence, immortality and transmigration of the Soul. For him, soul is eternal
and simple. Knowledge is brought by the soul from previous existence. Life and
death are opposites and they generate each other. Thus Plato tells us that 82

the body is the source of endless trouble to us by reason of the mere
requirement of food and is liable also to diseases which overtake and
impede us in the search after true being: it fills us full of love and
lust, and fears, and fancies of all kinds, and endless toil and,
fact, as men say, takes away from us all power of thinking at all.
Whence come wars, and fightings and factions? Whence but from the
body and lusts of the body? Wars are occasioned by the love of money,
and money has to be acquired for the sake and in the service of the body:
and by reason of all these impediments we have no time to give to
philosophy: and, last and worst of all, even if we are at leisure to
betake ourselves to some speculation, the body is always breaking in upon us, causing turmoil and confusion in our inquiries, and so amazing us that we are prevented from seeing the truth. It has been proved to us by experience that if we would have true knowledge of anything we must be quit of the body—the soul in herself must behold things in themselves; and then we shall attain the wisdom which we desire, and of which we say we are lovers; not while we live, but after death; for if while in company with the body the soul cannot have pure knowledge, knowledge must be attained after death, if at all. ...And what is purification but the separation of the soul from the body? ... There is one true coin for which all things ought to be exchanged, and this is wisdom.

His ideas on Soul can be gleaned from his attempts to dispel the doubts of Cebes as to the existence of Soul after death. He begins by maintaining that all the things having oposites are generated by their opposites. Thus death generates life and life in turn generates death. By this argument it is proved, says Socrates, that souls exist somehow and somewhere after death. Following closely on the heels of the theory of opposites is the theory that all knowledge is reminiscence. For Socrates knowledge is nothing but a recollection. In *Meno* he says *there is no teaching but only recollection*. By this he proves that knowledge is brought by the soul from a previous existence.

He also rejects the Pythagorean concept of soul ... harmony by telling that Soul, like ideas, is simple, whereas harmony is complex.

It was Socrates who initiated the change from mythology to philosophy first by systematically presenting the mythical beliefs [seemingly clothed in the language of philosophers] and then by exorcizing the soul from the body and made it to return to
communicate with the body. Thus in the above sense he was the first interactionist, if not, the first dualist. Plato gave momentum to this change by adding his own conceptions to that of Socrates. Aristotle almost completed this trend with the help of his extensive knowledge of various sciences. All those who followed these three greats were only a part of this trend in the next two thousand years including Immanuel Kant -- the greatest of them all.

To give one single account of Plato’s doctrine of body, mind and soul is very difficult. The first and foremost difficulty is that his notion on this subject occurs in more than one place. Thus we find his ideas on this subject expressed in *Republic*, *Phaedo*, *Timaeus*, *Phaedrus* and *Thaetetus* to name a few. Second, his concept of soul and body seems almost throughout his dialogues, never separable from his theory of Knowledge. Thirdly, to isolate what is Plato’s own thoughts apart from what he presented is that of Socrates’ is a controversial subject and lastly almost all his opinions and theories have had voluminous interpretation and this makes our task even more difficult.

Since *Timeaus* contains the central notions of Plato on mind and soul, the account presented in *Timaeus* is considered for analysis. He begins with an account of the world, the soul and in fact anyone who wishes to understand Plato’s ideas on body-mind relations should first grasp his notion of world-soul. Plato maintains that God first made the world soul [and he firmly believes that according to only certain mathematical formula] to produce an essence containing a mixture of diametrically opposite
ingredients. First of these ingredients is conceived as eternal and unchanging and is capable of being apprehended only by the purest form of thinking and the second is conceived as an ephemeral and changing ingredient of which we can have no more than a probable opinion based on the senses.

Then comes his notion of what he calls "body of the world". Plato's obsession with mathematical formulae is being overcarried here and he says that God created this body of the world [again according to a perfectly worked out mathematical pattern] apparently for two reasons [although Plato admits only one of them], first to mix earth, air, fire and water and then to infuse the world-soul into this body of the world. Having created the world [with the infusion of the soul the picture of the world is complete], God proceeded to create Demiurgoi and handed over to them the function of creating lesser things so that He may create man. In the case of man God created the individual soul by Himself. God created, says Plato, as many individual souls, as there were stars and assigned a star to each soul. Then they were taken around to see, for themselves their destiny of being, imprisoned in the cage of love and passion, pleasure and pain, and fear and anger and finally they are handed over to Demiurgoi to get the final touches. Demiurgoi, the Expert Fashion Designer, so to say, fashioned human bodies with immortal soul on the head and mortal soul on the body. Plato goes further and divides this mortal soul into two. The first capable of courage and love is lodged in the chest and lower one desiring meats, drinks and sex being nailed in the navel area.
In presenting the above, I have abstained myself from peripheral ideas to which Plato carefully connects these central ideas nor have I ventured into his theory of knowledge which it seems to be a widely different kind of soul, differing as what is eternal from what is perishable; it alone is capable of existence in isolation from all other psychic powers. All the other parts of soul, it is evident from what we have said, are, in spite of certain statements to the contrary, incapable of separate existence. He goes further and maintains that since the objects of mind are timeless, the mind is also timeless and eternal. For him thinking has nothing to do with the senses nor the soul. Thinking is the function of the higher mind. Hence, in Aristotle's opinion, only mind can be immortal, and rest of the soul cannot. This distinction of soul and mind is very much peculiar to Aristotle, though he might have derived the idea from some of the related concepts in Socrates and Plato.

Now to the complex portion. Aristotle neatly summarizes the positions of his predecessors by remarking that all of them distinguish soul by three of his attributes: movement, perception and incorporeality. He wishes to turn away from them and offers a three fold classification of substance: first is the matter or that which is not in itself any particular thing. Second, shape or form in virtue of which it is called some particular thing; and finally a compound of the two. Proceeding from here he concludes that the soul is the substance in the second sense and is of the form of a natural body which potentially has life. Body and Soul are related as matter and form. "The soul must be a substance in the sense of the form of a material body having life potentially within it. But
Thus we find in Aristotle the mythical beliefs turned into philosophical theories. Socrates began the effort by questioning some of the prudent beliefs and supported that which was feasible with his own mythology. Plato, the sincere student he was, continued the line of master and Aristotle went one step further and being a thinker more interested in biological sciences, dissected those beliefs. Their greatness lies in that they did not look elsewhere for alternatives after questioning these beliefs. Rather they philosophized these mythologies, so to say. They handed over these philosophized beliefs to posterity which rolled over centuries to land in the hands of Descartes in the seventeenth century ready to be converted first into logical notation and then into a scientific datum. This is unbelievable. Mythology transforming into science. This is what has happened. Some may even refuse to believe all these, but a word of caution to them: Be awake and respond or else you may find yourselves lagging centuries behind and when you open your eyes you may go mad thinking that Science has turned into Mythology. This is not certainly an anamoly and even if it is, it is not as worst an anamoly that Plato and Aristotle created together: "Plato the idealist, the mystic, the deductive philosopher, was a propollent of studies of organic cerebral pathology; Aristotle the pure biologist, the inductive scientist, stimulated the study of psychology proper." 93

Since we have already stated our reasons for taking up Descartes for discussion while leaving out others, let us go now straight into his doctrine of soul or mind and body. 94
In his quest for certainty, Descartes began by setting out twenty-four rules and he firmly believed that these set of rules, which he considered as rules for the direction of mind, set out the power of Mind and the role of Consciousness in understanding. He begins by doubting every-thing around him and of course his own body as well: "I resolved to reject as false everything in which I could imagine the least doubt, in order to see if there afterwards remained anything that was entirely indubitable." This celebrated method of doubting leads him finally to assert or be more sure of the existence of his mind rather than his body. "I suppose, then, that all the things I see are false: I persuade myself that nothing has ever existed of all that my fallacious memory represents to me. I consider that I possess no senses; I imagine that my body, figure, extension, movement and place are but the fictions of my mind... What, then, can be esteemed as true? ... we must come to the definite conclusion that this proposition: I am, I exist, is necessarily true each time I pronounce it, or that I mentally conceive it. ... I do not now admit anything which is not necessarily true: to speak accurately I am not more than a thing which thinks, that is to say a mind or a soul, or an understanding, or a reason, which are terms whose significance was formally unknown to me. I am, however, a real thing and really exist; but what thing? I have answered: a thing which thinks." 95

Having asserted the existence of his own mind, he goes on to trace the location of the mind and declares that "we must know therefore that although the mind of man informs the whole body, it yet has its principal seat in the brain, and then it not
only understands and imagines, but also perceives . " He here at this point, Descartes
proves his ingenuity and goes further than Hippocrates to pinpoint a particular area in
the brain which, according to him, links mind and body.  The scientific temper of the
age is reflected in Descartes when he sets out further and attempts to give explanation
or reason for his considering the pineal gland as the seat of the soul when he says, "The
reason which persuade me that the soul cannot have any other seat in all the body than
this gland wherein to exercise its functions immediately. is that I reflect that the other
parts of our brain are all of them double, just as we have two eyes, two hands, ... it
must necessarily be the case that there must somewhere be a place where the two images
which come to us by the two eyes, where the two other impressions which proceed from
an object ... can unite before arriving at the soul ... but there is no other place in the
body where they can be thus united unless they are so in this gland." and "In man, the
brain is also acted on by the soul which has some power to change cerebral impressions
just as those impressions in their turn have the power to arouse thoughts... ."

Over the years we have faced many a analysis and criticisms on Descartes [for
instance he reimports the problem of connection between body -- a physical substance
with extension as a primary quality and mind a spiritual substance with thinking as a
primary quality -- when he introduces pineal gland as an attempt to solve the problem.]
but often such criticisms take us to dead ends and pessimism.
Instead let us see the positive side of Descartes' position. Giving special attention to brain, he, knowingly or unknowingly opened the new channels of modern science. For instance, his analysis of the link between optic nerves and brain, however crude and primitive it might have been, was the first in modern times to explain in detail how perception is represented in brain as against the futile search of the Direct Realism. And perception is one of the very important points of discussion in the philosophy of Artificial Intelligence! In their search for complete knowledge of the brain, the neurobiologists are attempting to find out whether the brain is open to non-physical influences such as mind or soul and this is what exactly Descartes upheld. After all, even the neurobiologists are [at least in one sense] attempting to find the Mind and even if one approves [interestingly in the recent times this doctrine of Descartes was upheld by Karl Popper and John Eccles] of this position of Descartes it is not going back in time as we shall see later in the next chapter in our analysis of 'science and mind'.

Before moving onto scientific accounts on mind, let us look into an important but profound and perplexing concept that is more or less closely associated with the question of mind. It is the issue of Consciousness. It is one of the issues that has been hotly debated over the years in the modern times.
2.4 What is Consciousness?

This is one question, at least at the present level of our knowledge, that appears
certain to elude us and it is quite possible that we may never end up with an answer
satisfactory to all. We take up this difficult issue for discussion for two reasons. First,
it has got relevance to the serious research on brain by the neurobiologists in their quest
for mind. Second, if it is proved at any point of time in future that consciousness is a
non-material entity and it influences nervous system and is responsible for our
intelligence, then it will go a long way in proving that the efforts of the proponents of
Artificial Intelligence as futile.

Is there anything called Consciousness? Or is it a presumed phenomenon, a
cooked up idea? Most of us know that we possess consciousness, even though we
cannot tell what it is. Most of us are also likely to agree that certainly it is not a
presumed phenomenon. But there are many others who are likely to deny [some of them
have done it in the past] the existence of consciousness. So, we see on one hand a
variety of opinions such as "beam of light" and "network of intensions" on what
constitutes consciousness while on the other we see others who strike odd notes:

The existence of something called consciousness is a venerable hypothesis; not a datum, not directly observable ...." (HEBB)

"Although we cannot get along without the concept of consciousness actually there is no such thing." (KUBLIE) and

"The knower as an entity is an unnecessary postulate." (LASHLEY)
Often we assume and in fact it is a popular notion that consciousness is awareness. It is also true that many present day thinkers also equate consciousness with awareness. One cannot reject this notion outright [I am afraid because we lack a sound counter argument]. Nor can one accept it completely. At times, it appears that consciousness and awareness are different. Suppose a person is given anesthesia and loses his consciousness. After his return to a normal state, he is most likely to tell that "I am aware of the fact that I was not conscious when under anesthetic state."

Moreover some of the observations by the psychologists in this century have established that knowledge acquisition or learning without awareness is quite possible.

Lazarus and McCleary have given the claim that learning or acquisition of knowledge without awareness is possible. Lazarus has called the process by which such learning or acquisition is possible as subception. ¹⁰⁴ Psychologists have accepted subception as a process of learning without awareness.¹⁰⁵ On the other hand consciousness seems to be thickly involved in our thinking, learning and acquisition of knowledge. Hannah Arendt goes even to the extent of saying, "Without Consciousness ..., thinking would not be possible."¹⁰⁶ But thinkers like Gregory who equate consciousness with awareness are cautious. For them the process of knowledge acquisition does not depend on consciousness. And what about self-awareness? In the light of numerous experiments it appears that long before one attains the awareness of one-self one becomes aware of others, usually ones own parents. Experiments by R.I.
Fanz ascertain the fact that there is an inborn interest towards the human faces. According to Fanz even very young babies [astonishingly at the age of five days] fixate a schematic representation of mother’s face for longer periods. Experiments of this kind suggest very strongly that young children attempt to develop interest in understanding others. P.F. Strawson suggests that the general idea of a person must be had prior to the learning of the usage of the word ‘I’. And Popper goes ahead one step by suggesting that "... consciousness of self begins to develop through the medium of other persons; just as we learn to see ourselves in a mirror, so the child becomes conscious of himself by sensing his reflection in the mirror of other people's consciousness of himself."

May be both consciousness and awareness co-exist at times, but certainly there seems to be at least a subtle difference. Then, what is consciousness? I would like to suggest that consciousness is a principle that makes those who possess it, intelligent. It is that principle which enables us to be aware of the external world as well as of ourselves. I would also suggest, even though at the present level of knowledge it may be too premature to say this, that it may be closely connected with mind. But it is not mind. May be it is an attribute or why, even a function of mind.

Having made this observation, let us now move towards a even more difficult problem, but the one connected with consciousness: Animal consciousness. Do non-human animals possess mind or consciousness? Are they intelligent? Many people
in the past have denied the existence of intelligence or mind or consciousness in non-human animals mainly by relying (and unfairly too) on their inability to ‘speak’ because for such advocates language is an essential feature of intelligence or consciousness. For Hannah Arendt, only a man is the sole possessor of consciousness. 

"...only in this humanized form does consciousness then become the outstanding characteristic of somebody who is a man and neither a god nor an animal".¹¹⁰ For Merleau-Ponty, thought without speech is inconceivable. "...thought and speech anticipate one another. They continually take one another’s place."¹¹¹ Not only these philosophers quoted above, but many philosophers and psychologists in the past have considered consciousness or mind as something very much bound up with human language. According to this view it is language which distinguishes human beings from other animals and some of them even have the opinion that is only by virtue of our linguistic abilities that we attain the subtlety of thinking. One more thing that is, according to them, a hallmark of humanity. For man, language is the expression of human souls. Language is that which helps us to convince others of our possession of awareness or consciousness. Hence, according to this viewpoint, language is the essential ingredient of consciousness.¹¹²

Having stated the problem of consciousness and other related matters, now let us return to our suggestion that consciousness could be a function or feature or an attribute of mind. If our suggestion is true, then we would have settled two issues. The problem of relation between mind and consciousness are also the problem of necessity
of consciousness in our life. If not, the search continues. Talking of searching, we did mention earlier, that even scientists are also attempting to track down mind, in their search for complete understanding of brain functioning and in their attempt to find the basis of life. But, should the philosophers be concerned about what is happening in Physics and Biology? The answer seems to be ‘Yes’. According to Patricia Smith Churchland, if philosophers are going to ignore the science of the day, they can't hope to understand the things they want to understand. She feels that it is high time that philosophers throw away the older ways of theorizing and philosophizing and should turn towards the results of the scientific experiments.13 Although I do not agree completely with what all Ms. Churchland says, I feel that she is quite correct in the emphasis of philosophers having the simultaneous knowledge of other sciences. Such acquisition, in the long run, will prove to be of immense help, rather than an obstacle.
REFERENCES

CHAPTER - II


24. See footnote 4, to sec 16 of Chapter P3 in Karl R. Popper and John C. Eccles. (1986) op. cit. p. 53

25. Ibid., p. 85.


In the words of W.V. Quine "... far and away the most important publishing event in mathematical logic in 31 years!"

29. For the most innovative treatment on Godel, closed systems, human mind, philosophy of mind and Artificial Intelligence refer Douglas Hofstadter. (1980), op. cit.

30. For the comments on Godel's theorem and Mind with a fresh approach refer C.T.K. Ciardi. (1963). "Further comments on Minds, Machines and Godel", Philosophy, 38. pp. 175-178. A very significant contribution from a scholar who was ahead clearly of other thinkers in time by some thirty years.


34. It would be worth pointing that about two thousand years before Homer, Hindus had the mastery over an indirect expression or clothed language which is now known by the name Sandhyā Bhasha. There are numerous traditions which follow Sandhyā Bhasha as a means of expression. For more on Sandhyā Bhasha or Twilight Language refer T.N. Ganapathi. *The Philosophy of The Tamil Siddhas*, (New Delhi : ICPR, 1993), pp. 167-188.


39. *Odyssey* 10, 240

40. *Iliad* 1, 113-115.


Interestingly, Dodds counts even Pythagoras and Empedocles as the Shamans of primitive nature. For more on Greek shamans and the dualistic distinctions refer K. Meuli. (1935) "Scythia", *Hermes* 70, pp. 121-176.


49. Vedic seers possessed astonishing depth of geographical knowledge. Earliest references to geographical data and geographical landmarks can be traced in Rig Veda. See Sashibhushan Chaudri. "Geographical Knowledge in Ancient and Medieval India" in P. Ray and S.N. Sen (eds.) (1986), *op. cit.*, pp. 5-17.

The knowledge of classification of territories, nations and universe can be traced in almost all the puranas, especially in *Markandeya Purana, Matsya, Brahma, Kurma, Vayu and Visnu puranas*. For more on geographical knowledge available in Puranas refer S.M. Ali. *The Geography of the Puranas*, (New Delhi : People’s Publishing House, 1966). Commenting on the knowledge of Geography in Puranas, Ali says that the range of their treatment of the subject covers the "geography of practically the whole of the old world, the surrounding oceans and observation of some of the atmospheric phenomena" See S.M. Ali. "Geography in Ancient India",
According to Raja Ramanuja, the origin of Mathematics can be traced in the earliest Hindu doctrines. It is an universally acknowledged fact that the ancient Hindus possessed the high degree of sophistication in the use of mathematical symbols and applications. Refer Swami Sri Bharati Krishna Tirtha. *Vedic Mathematics*, (New Delhi : Motilal Banarsidas, 1986). This epoch making and monumental work unfolds a new approach relating to the truth of numbers and magnitudes applicable to all sciences but based on *Vedas*.


The dates of the first use of tools by the homo sapiens and development of physics may have to be revised with more and more information available on the development of physics in the vedic times. For instance, Vedic sages possessed the knowledge of polarity of magnets, repulsion of poles, electrostatic attraction etc. Vedic people also used numerous mechanical devices for grinding, squeezing, for extraction etc. For more refer Satya Prakash. *Founders of Sciences in Ancient India*, (New Delhi : Research Institute of Ancient Scientific Studies), p. 53.

Humspe and the sciences from the time of Vedas see, Ibid., pp. 414-367.


57. Ancient Hindus possessed a sound knowledge of hydrography and maritime engineering. eir and’s position (territorially) might have helped them to some extent. There are numerous references to sea-voyages and sea-borne trade in Vedic texts. Nav the term for ‘ship’ occurs not only in the Rig Veda but also in later Samhitas and Brahmanas [For instance refer Rig Veda (I.24.35-36, 1.48.3, 1.97.8, I.116.3, and VII.88.3-4), Satapatha Brahmana (II.3.3.15)]. In the post-Vedic period we come across references to shipping activities in *Ramayana* (II.89.11-16), *Mahabharata* (I.143.5-7), *Digha Nikaya* (1.222), Arthasastra (II.28), to name a few. However *Yukti Kalpaturu* attributed to King Bhoja offers an elaborate and analytical study of ship building in ancient India. Refer Pandit Iswara Chandra Sastri. (ed.) *Yukti Kalpaturu*, (Calcutta, 1917), especially pp.223-229. Also refer K. Sridharan. *A Maritime History of India*, New (Delhi: Ministry of Information and Broadcasting, 1965). Radhakumud Mookerji. *Indian Shipping* (Bombay : Longmans, Green & Co., 1912). and S.R. Rao. “Further Excavations at Lothal”, *Lalit Kala*, No. 11, April 1962.


64. *Ibid.*

65. Swami Gambhirananda. (Tr.) *Chandogya Upanishad*, (Calcutta : Advaita Ashrama, 1983), especially 6.2.3 - 6.5.1.


73. Swami Madhavananda. (Tr.) *The Brhadaranyaka Upanisad*, (Calcutta : Advaita Ashrama, 1988), 1.5.3.


82. *Nyaya Var tilka of Uddyo takara*, 3.2.26.


84. Ibid., p. 92.

85. Ibid., p. 50.


89. Ibid., p. 102.


92. Ibid., pp. 151-152.


95. *Meditations on First Philosophy*, Meditation II, p. 149.


112. Language as a dividing line between human beings and other animals has been in vogue for quite long. Significantly it is only after Descartes, philosophers have begun to look seriously at language. But David Hume's emphasis was simply overshadowed by his other theories and also by his conservative colleagues. But, in my opinion, this thread has been picked by at least one philosopher, Schopenhauer. Refer A. Schopenhauer, *The World as Will and Idea*. In the present century psychologists are referring to speech as a dividing line. Refer E.O. Wilson, *Sociobiology*, (Cambridge, Mass., : Harvard University Press, 1975), p. 556.