

Physics and Metaphysics

According to materialists, only matter exists, there is nothing else. These notes from a lecture given by Sivarama Swami, explain another worldview, in which, the reality of things other than matter is accepted.

The Vedas, the ancient scriptures of India, describe all branches of material knowledge included in modern science.

However, there are considerable differences between the Vedic method of knowledge and the modern scientific method. Let us examine this difference more closely. How do we discover a certain physical law? How was gravitation discovered?

When Newton was sitting under the tree, he observed an apple fall, he tried empirically and intellectually to understand, which force caused the apple to fall. In such a case we come to an understanding of the physical law by experiment and intellectual speculation. However, the Vedic method is different. The emphasis is different, as the Vedas are considered to be the source of perfect knowledge. Why is this? It is because they are Holy Scripture, and they came from the Creator. The Creator is the original physicist who planned and created everything. Therefore, there is no better method to gain understanding of the material world than by approaching the Original Personality. Thus the two methods of acquiring knowledge are, when somebody relies on his own effort to understand the reality, or when somebody turns to the Creator who can explain everything. If from the start, we accept the existence of the Creator, who is the planner and maker of everything, to learn from Him is much easier and an infallible method compared to carrying out our own experiments, because this empirical method relies on our very limited senses.

This is the difference between the eastern and western epistemologies. The differing ways in which knowledge is acquired. There are two processes: the descending and the ascending. The second, descending method, is experimental and carried out by our own efforts. It is not necessarily bad and we can acquire knowledge although there are some serious obstacles. I would like to briefly explain those prerequisites that determine not only the physics, but are the characteristics of the whole of western science. These prerequisites comprise the basis of the western scientific faith:

1. It is considered that the laws we know here on this planet are universally applicable for all time. In other words, that they are general. We think: "the laws that exist on this planet must exist also everywhere else". Although this hypothesis is unproven, and cannot easily be proven, we accept it as a basic truth. This generalisation of the laws thus belongs nowhere else but in the category of faith.
2. We think that it is possible to obtain a tangible understanding of the material world through experiment and observation. This is nothing more than faith. We could start inform the opposite view: 'No matter how hard I try to study this material world I will never understand it'. Here in the west however, our starting point is - "yes, the material world can be completely understood.
3. We do not just say only that the material world can be understood through observation but that it can be explained by mathematical formulas, which are a simple explanation of the observations. Putting it another way all things around us are explainable in a simple way by mathematical formulas. This is why the scientists try to find a universal formula which explains everything. Leon Lederman the director of the Fermi National Accelerator Laboratory in Batavia in Illinois USA said: "We hope to explain the entire universe in a single, simple formula that you can wear on your T-shirt." - (The Cosmic Blueprint, 1989, p. 13.) Even Einstein believed that mass energy conversion formula, $E=mc^2$

explained everything. Later however, it was found that this formula was not applicable to quantum mechanics so there was a need for newer formulas. So, in summary, according to this third belief, we can explain this material world with simple formulas.

These three basic assumptions are pillars of faith in physics and other sciences.

Let us now examine the philosophy of physics and other empirical sciences. From a basic philosophical knowledge of physics, we understand what the goal of physics is. It attempts to understand the reality and the world around us - this is the meaning of physics. In this material world, there are two things that we experience, in philosophical terms known as "matter" and "consciousness". Instead of the term consciousness I could use the term soul or 'atma' in Sanskrit language. In gross matter like a table there is no consciousness however, in us there is. Where is consciousness situated in the body, and what is its origin, that is another question.

Scientists have tried for many years to find the relationship between the two. Moreover, this question of matter-consciousness is also one of the central problems of philosophy. (The mathematician Rene Descartes for example, gave a dualistic explanation.) Since these two elements comprise the existing reality, the actual goal of physics is to find an explanation of their relationship.

The answers to this question are characterised by three types of existential theory. One of them considers these two elements to be completely different from each other - this is dualism. According to monism however, these two elements are differentiated manifestations of the same existence. The third explanation is given by nihilistic philosophy according to which all things - both matter and consciousness - are the manifestations of nothingness. The nihilistic philosophy corresponds to the Buddhist understanding of life which claims that whatever we see - whether matter or spirit (the consciousness) - originates from nothing.

The modern science is in favor of the second choice, namely monism, which further has two more divisions:

- a) all matter and consciousness originates simply from the combination of matter, or
- b) all varieties of consciousness and all matter is nothing but the transformation of consciousness.

Empirical science is based on the first version of monism - this is called materialism. So, according to materialism everything is matter, and what we experience in reality as consciousness is nothing else but the transformation of matter.

The second variety is called idealism or solipsism. Briefly therefore, there are three possible answers:

1. Dualisms
2. Monism
 - a) Materialism
 - b) Idealism
3. Nihilism

According to materialism, everything in reality can be explained by matter. We can see that this is only one alternative, one optional choice out of the three possibilities, it relies on an assumption based on faith. There are some scientists today, who admit that materialistic knowledge cannot give a complete explanation of all the world's phenomena. This is especially true in the field of quantum mechanics

when they try to describe the behavior of the subatomic particles. To do this, it is not enough to have material knowledge. In quantum mechanics calculations, many are seriously considering that there is one more factor: the consciousness of the observer. There are some experiments that show, for example, the direction of the subatomic particles - whether they move straight or to the left or to the right - can be changed by the influence of one's consciousness. Moreover, nowadays few physicists seriously consider the option that everything can be explained by consciousness.

So, the present science of physics can be categorised as materialism because its explanations are built on matter. What is the smallest material particle? It is the "atom". According to physics if we carefully study the atom and understand everything about it, then we will completely understand the world around us. Of course, this logic is used not only in physics but also in chemistry, biology, mathematics etc. All these sciences are built on the above mentioned three assumptions and hold the view that merely by studying matter we will be able to understand everything. This is the basic philosophy of the western science.

Often, when we begin to speak about religion there is an accusation that religion is just silly faith. So far we have explained what western science is about. It is completely based on faith, in other words, the faith that through science everything is explainable. When somebody takes a certain approach, he perceives the whole world through that preconceived world view, even if in reality things are different.

Vedic science, as I already mentioned, is different from western science. It is not empirical science, it is not based on experiment but it is revealed through the Vedic literature. The Vedas explain things in a different way. E.g. matter and consciousness both exist and are described as being different from each other and having certain interactions. The interaction between matter and consciousness is made possible by one Supreme controller, God.

What is our understanding of the world in which we live? Yes, there are atoms that are the smallest building blocks of this world. The Vedas, however, describe the atoms in different way. The main elements of the atom are: ether, air, fire, water and earth. This is very similar to that understanding of the scientists in the Middle Ages. They tried to understand the material world according to these five elements. Of, course these terms do not refer to one element only. For example, "fire" does not refer just to the flame of a candle but also to heat, light and even electromagnetism, the digestion fire etc. All these are in the same category of fire.

The material elements are combinations of these five basic elements (ether, air, fire, water and earth). Now, in how many ways can the five elements combine? The calculation is $5 \times 4 \times 3 \times 2 \times 1 = 120$. There are, in this way, one hundred and twenty combinations, this is identical with the number in the periodic table of elements used by chemists. Since I was at school the Dmitri Mendeleev's periodic table has changed a lot. The total number of possible elements enumerated in his table is almost hundred twenty. Not all of them are discovered (the total so far described is 111) but according to the Vedic scriptures - in the real physics - there are in total one hundred and twenty material elements. By the different combinations of ether, air, fire, water and earth, different types of atoms are generated like hydrogen, helium etc. So, all elements originate in the combination of these five primary elements. All these elements are categorised as gross material elements.

The ability of gross matter to react depends on the presence of another factor since nothing can combine by itself or nothing can happen of itself. This important factor is consciousness. Consciousness is completely different from matter. Let us explain this through the example of a table and the pear tree in the garden. What is the difference between the two? What is the cause of life in the tree, and why there is no life in the table? Or, how do we know that the tree is living? What is the proof

that one is alive and the other is dead? The proof is that the tree is growing and so we can understand the presence of a living entity in it. So what is that living entity? What is its origin? Why do the material elements combine in a certain way? Why is the tree growing? These are all important questions for our attempt to understand the difference between consciousness and matter. So, in the table there is no consciousness, however, there is in the tree. The tree knows in which direction to grow, not crookedly but properly. He knows where the sun is therefore, it grows upward. It has of course a different level of consciousness to us, but it grows only as long as consciousness is present. As soon as we uproot the tree, the consciousness goes and growing stops.

From this example, we can see that consciousness is another element and is differentiated from them. When we study the material elements, we will always study the 120 elements and the molecules that can be generated from the interactions of these elements. However, we will not perceive consciousness in these 120 elements. For example, carbon is the most prominent element in a tree but carbon is not the source of consciousness. The material elements are not conscious.

So, what is the origin of life? If we say that matter is the cause of everything that exists, then the question is how does matter create consciousness? If there is no consciousness in nitrogen, carbon, phosphate etc. then how can a combination of these elements create consciousness?

One possible answer is that when these elements are separate, consciousness is lacking, but when combined, consciousness is created. This seems to be a good answer. However, there is a basic philosophical law that is often used in scientific research. It is the law of cause and effect. According to this, the 'effect' cannot have more qualities than the cause of it. We therefore conclude that it is not possible to have more qualities in the creation than in the creator. We have to conclude that whatever material elements we combine that we will never produce consciousness.

This contradicts empirical science, according to which there must be at least one such combination or arrangement of the material elements that creates consciousness. This is what the biology deals with: how to create life. They are trying to create life by combining organic and inorganic compounds. However, if there is no consciousness in the chemical compounds, consciousness can never be created, no matter which elements they use in the mix. Therefore, there is a need for one extra, additional, external thing that is not on the list of the 120 material elements. And what is the answer, from what does consciousness manifest? This additional thing we call the 'soul' in Sanskrit 'atma'. The soul is different from the other elements we mentioned before and so we can say that it is the 121st ingredient that explains the existence of consciousness. The study of all the material elements does not answer from what does consciousness manifest. Therefore, there is a need for one more ingredient. That soul, with the material elements gives clear symptoms of consciousness.