

Science Emerging from the Upanishads

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Date: 6th August 2015.

Abstract:

Is the standard model of fundamental-particles, with six quarks, leptons, photons and force carriers....., final? Or there is something beyond it? And, how to accommodate our direct experience of 'consciousness' in Physics? As an attempt to seek answers to these questions, an alternative view emerging from the ancient spiritual scriptures, namely Upanishads, is presented here for consideration of scientists.

1. Introduction

Upanishads are concluding chapters of the four volumes of Vedas. Out of the total 108 Upanishads, eleven are considered 'major'. Out of them, study of five major Upanishads is considered sufficient for gaining the knowledge ; so these five are considered here.

The conclusion emerging from them is: that the ultimately fundamental substance of the universe is not only a real substance but it has also a property of 'self awareness' or , consciousness'. It will be interesting for the scientists to recall Max Planck's words: " I regard 'Consciousness' as fundamental. I regard matter as derivative from 'Consciousness'. We cannot get behind 'Consciousness' . Everything that we talk about, everything that we regard as existing, postulating 'Consciousness'." Max Planck, theoretical physicist, who originated quantum theory which won him the Nobel Prize in physics, in 1918.

Some current researchers on 'consciousness' believe that a conscious system must contain huge storage of memory, efficient data-retrieval and data-processing power. e.g. According to Prof. Krick: " Consciousness is a process of combining attention with memory."

In my opinion what they call as ‘conscious system’ seems to imply the process of Mind. The jobs of the ‘Mind’ are perception, cognition, decision and response. Therefore ‘mind’ definitely needs a hardware for memory-storage, data- retrieval and processing . The hardware of our ‘Mind’ is our ‘Brain’. But the property of being aware can be a property of a fundamental field, as was indicated in ref.1. It seems, from the statements of the Upanishads, that the most fundamental reality possesses a property of self awareness, a pure Consciousness.

In the next section we shall look at the statements from the Upanishads: and in the subsequent section, attempt to formulate a new science, with an aim to seek answers to the questions raised in the abstract.

2. Collected statements from the Upanishads:

2.1 ईश आवास्यम इदम् सर्वम् , यत् कींचित जगत्याम जगत

Meaning: Everything that we find in this world is pervaded by Isha, the Ultimate Reality.

तद एजति , तद न एजति , तद दूरे तद अन्तिके ।

तद अन्तरस्य सर्वस्य, तद उ सवस्य अस्य बाह्यत ॥

Meaning: That Ultimate Reality is in the vibrating state somewhere and in non-vibrating state elsewhere. It is Inside everything and being and that alone is present outside of them all, i.e. everywhere.

2.2 in the next Upanishad, namely Kena-Upanishad, a student asks a question to his teacher:

केन इशिताम प्रतति प्रेषितंम मनः , केन प्राणः प्रतति प्रेषियुक्तः।

केन इशिताम वाच इमाम वदन्तिः, चक्षु-क्षेत्रम कउ देवः युनक्ति ।

Meaning : Because of whom the mind is able to think? Because of whom, the physiological functions of the body are running? Because of whom the speech is able to speak, and who unites the inputs of eyes and ears?

The Teacher replies:

क्षेत्रस्य क्षेत्रम् ,मनसो मनोयद

चक्षुषः चक्षु , सउ प्राणस्य प्राणः

तदएव ब्रह्म त्वम् विद्धि ।

न इदम् यद् इदम् उपास्यते ॥

Meaning : That, which is the ear of the ears and that which is the mind behind the mind ; that which is the real eye behind the eyes is also the force behind all physiological functions. You know that alone as the Brahman (the ultimate Reality) and not the idols of various shapes, which people worship here.

2.3.1 in the Kathopanishad the teacher Yama explains to a student Nachiketa :

अग्नि यथा एकः भुवनंम् प्रविश्य, रूपम्-रूपम् प्रतिरूपम् बभूव ।

एक तथा सर्व-भूत-अंतःआत्मा , रूपम्-रूपम् प्रतिरूपम् बहिःच ॥

Meaning: Just as fire , which is essentially one, appears to be different in different names and forms, (e.g. fire of burning wood and the fire within our physiology, of burning glucose by the oxygen contained in the blood), so exactly the Ultimate Reality within every thing and being is one, which has assumed various names and forms. And it is also present outside of all the names and forms, i.e. everywhere.

नित्यो नित्यानाम् , चेतन चेतनाम् ,एको बहुनाम् यः विदधाति कामान् ।

तमात्मस्थम् ये अनुपस्यन्ति धीराः, तेषाम् शान्ति सास्वती न इतरेषाम् ॥

Meaning: THAT, which remains permanent among the temporary objects of various names and forms, ‘that’ Ultimate Reality is the life and consciousness of all the living-beings, the one reality among many. The patiently-studying people, who are able to see it seated in them as pure consciousness, to them belongs the permanent peace and not to others.

2.3.2 यदिदम् किञ्जगत सर्वम् प्राण एजति निःश्रुतम् ।

महदभयम् वज्रउद्यतम्, य एतद् विदुः अमृताः ते भवन्ति ॥

Meaning : Whatever is there in this universe is trembling; like a person trembling out of fear when a powerful weapon called Vajra is aimed at him.

2.4. In the Mundakopnishad a chancellor of a forest-university, namely Shaunak, approaches a Rishi namely Angiras; and asks:

कस्मिन्नु भगवो विज्ञाते सर्वम इदम विज्ञातम भवति इति ?

Meaning : Respected Sir, what is that, knowing which everything becomes as well known?

(The Rishi noticed that the professor is feeling somewhat un-comfortable. So to create a lighter atmosphere the Rishi asked: Dear professor, do you think knowing the prices of daily use commodities is not required? Both, the knowledge of day-to-day use as well, as the higher knowledge, are needed to be known, isn't it? And then both of them laughed !)

Then the Rishi started the exhaustive reply to his question:

यद तद अद्रश्यम , अगोत्रम , अचक्षु-क्षोत्रम , तद अपाणी-पादम ।

नित्यम विभुम, सर्व-गतम शुक्षुक्षम , याथा तथ्य तोरथन व्यदधात व्याधतिच समाभ्य ॥

Meaning: THAT, which is invisible to eyes, not descended from anything more fundamental than that, which is without any separate parts like eyes and ears, hands and legs; that which is eternally ever-present and permanent in time and all-pervading in space; pervading in-and-through every thing and being because of its fineness... (this writer is un able to translate the remaining Sanskrit words of the stanza) Then the Rishi Proceeds :

यथा उर्णनाभः श्रुजते गृह्यते च ।

यथा प्रथ्वव्याम औषधयः सम्भवन्ती ।

यथा सत पुरुषात केश-लोमानी ।

तथा अक्षरात संभवती इह विश्वम ॥

Just as spider creates a cob-web , and eats it back if too hungry; just as various plants and herbs grow out of the earth; just as on the body of a living man hair

keep growing, so exactly from the imperishable Ultimate Reality this Universe has got born.

एतस्मात् जायते प्राण, मन सर्वेन्द्रियाणी च ।

खम, वायु , ज्योति, आपः, पृथ्वी विश्वस्य धारिणी ॥

From that are born the energy and forces of nature, the ‘mind’; and all the organs of perception and action. And from that alone are born the space, the air, the fire, the water, and the earth.

2.5 In the Mandukya Upanishad it is stated that everything which is now present , which existed in the past and will come into existence in future is termed as AUM, the Ultimate Reality. Just as the pronunciation of ‘ॐ’, ‘a’ is present in every latter and words , so exactly the Ultimate Reality is present in every thing and being.

The Ultimate Reality can be subjectively experienced in four different states:

- 1) The waking state, which can be felt while pronouncing the sound “ॐ” “Aa”;
- 2) The dream state, which can be felt while pronouncing the sound “उ” “Uu”...;
- 3) The deep sleep state, which can be felt while pronouncing the sound “म” “Mm”...;
- 4) And there is a fourth state of Consciousness, of pure awareness, without any thought or imagination. When we repeat the “Mantra” AUM.....AUM.....AUM....’ the silence between the two mantras gives us a feeling of pure Consciousness. This pure Consciousness is the subjectively perceivable pure aspect of the Ultimate Reality.(UR) . The UR is objectively also the most fundamental, real, reality; but it is imperceptible through eyes.

2.6 A book titled : Yoga–Vashistha–Ramayana, contains teaching of the Guru Vashishtha to the Prince Rama. In that book we find a stanza:

विस्वम बिची विलास अयंम, चित-सुधा-अब्धे उदेति यः ।

विलीयते च तत्र एव, मध्ये कथं तद-मयम ॥

Meaning : This universe is a play of waves, arisen in the ocean of immortal consciousness., the Ultimate Reality. It also subsides in that ocean alone. So it is said to be always contained in the Ultimate Reality.

3.0 Science Emerging from the Upanishads :

3.1. From the Section-2 we find that according to the Upanishads the most fundamental substance of the universe is all-pervading in space and eternally ever-present in time. So we can postulate the Ultimate Reality as an all-pervading continuum, or a highly fine field.

3.2.1. According to Isha-aavasya Upanishad, it (the U.R) vibrates somewhere and it does not vibrate in the remaining region.

3.2.2 According to Katha-Upanishad also the Universe is vibrating like someone who is trembling out of fear when "the most powerful weapon Vajra is aimed at him.

So we can postulate the UR as Vibrating or fluctuating field, or continuum.

3.3 Nature of fundamental particles:

Based on these postulates the most fundamental particle can be imagined as follows :

Let us imagine a solid rod AB fixed at its center O. Then rotate its end A clockwise such that the point A forms a small circle. The center of the rod will remain fixed, but the other end B of the rod will appear to rotate anti-clockwise forming a small circle , when viewed from the other side of the rod.

Now imagine a spherical cell fixed to the rod AB , such that the center O of the rod forms the center of the cell; so, as soon as the rod AB rotates as discussed, the whole spherical cell will also rotate; and every point on it will form a small circle. Then imagine this spherical cell as a part of a continuum medium. So when the cell rotates as described, a standing wave will get generated in the continuum medium. As we go radially-outward, the amplitude of the wave will

go on reducing because of availability of larger and larger area, as was shown with the help of diagrams in the reference-2.

Finally we can understand the amplitudes of above-discussed standing wave as amplitudes of fluctuations of the most fundamental field, namely the U.R.

Because of the all-pervasiveness of the U.R. the above-discussed continuum is present everywhere in space. So it cannot move linearly in any direction. But it can vibrate by forming a circular path, so we can get only spherical patterns of integer, whole number, of patterns of the vibrations of U.R.

It is proposed here that these spherical patterns of vibrations generated in the U.R are likely to be the most fundamental particles of modern science. Such vibrations can form different modes of vibration. They may appear to vibrate clock wise or anticlockwise from any direction. The patterns may even spin clockwise or anticlockwise; and can interfere with one-another.

The interference of the vibrating patterns can be described in terms of frequency, wavelength, masses and forces. The concept of mass and force is related to interference of vibrations. Regarding the question: what propels the U.R to vibrate ? We can only say that U.R is free to vibrate or not to vibrate: so both the states may always be present. Because of the subjective aspect of 'Consciousness' present in the U.R , these vibrations may be subjectively felt by the U.R as its thoughts and imagination. And depending upon the density or complexity of vibrations, the U.R may be experiencing different states like: waking, dreaming and deep-sleep state. Matter appears to be dead and inert to us, because the U.R within it may be in the deep sleep state.

In fact, the president of India, Dr. Sarwapally Radhakrishnan has stated in his writing titled : "Reign of Religion in Contemporary Philosophy" that: "The Ultimate Reality sleeps in a rock, dreams in a plant, and wakes-up in human being."

According to the Nobel Laureate bio-chemist, Prof. George Wald: " Mind, rather than emerging as a late product in evolution, may be present always as a complementary aspect of all matter." Ref.3. (By the word 'Mind' the professor means the 'quality or ability to be subjectively aware' and not the complex processing like cognition and thinking.)

4. Conclusion:

All the five Upanishads suggest that the most fundamental substance of the universe is not only physically real, but it is also capable of being aware of itself. This fundamental real substance is eternally ever-present in time and all-pervading in space. The fundamental particles of 'matter' are different patterns of vibrations or fluctuations of it. Depending upon the complexity of vibrations these patterns-of-vibrations subjectively feel them either in waking, dreaming or deep-sleep state.

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