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VEDANTA AND SCIENCE

By

SWAMI RANGANATHANANDA



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VEDANTA AND SCIENCE

SCIENCE is a vast subject. Vedānta also is a vast subject. The close relationship between the two was expounded by Swami Vivekananda more than seventy years ago. This idea that there is a kinship between science and Vedānta requires to be propagated throughout the world, and particularly in India. Vivekananda said that education in this country should be based on the close relationship between science and Vedānta. And with the passage of time, day by day India's leaders—political and administrative—are finding it more and more necessary to introduce the Vedāntic content into education. Very recently, Prime Minister Jawaharlal Nehru made the remark that what this country needed was science and spirituality. This he made with reference to a

remark by Acharya Vinoba Bhave who said that religion and politics had done much harm to the world and that what was needed was science and spirituality.

This is exactly another way of saying that what we need is science and Vedānta. The Prime Minister has recently been emphasizing this point quite often. In all educational training we need to grasp the fundamentals of science and of Vedānta. This will make the student modern and progressive in the true sense of the term, and through it he will enter a stream of thought which is destined to fertilize every section of Indian life in the course of time. The people in the Indian villages, whom educated youths will be called upon to serve in some field or other, need to be taught the essentials and the utility of both science and Vedānta. If, in the course of their education, they are able to get a clear understanding of this vital subject, it will make them more efficient in life and in work, and will also enrich their personalities. Thus they will be a source of strength to all with whom they may come in contact in the course of their life and career.

At the very foundation of our national culture, we have the eternal insight of the Vedānta, which the sages of the Upaniṣads achieved and left as a legacy for humanity. The voice used to express this insight has a rare fascination and power. That the Vedānta has stood the test of time and is quite fresh and strong even today, in this most enlightened age of human history, shows that it has captured the music of truth.

Satyameva jayate—‘Truth alone triumphs.’ This is the motto of the Indian Republic; it is taken from the *Muṇḍaka Upaniṣad*. Untruth comes and goes, but truth remains. That the Vedānta has captured the highest truth within its insight is evidenced by its permanence, its perenniality.

THE ‘WITHIN’ AND THE ‘WITHOUT’ OF THINGS

Truth is the aim of Vedānta; truth is the aim of science. The great scientists define science as a sincere pursuit of truth—a pursuit free from the attachments and aversions of personality. Sincere, critical pursuit of truth is what is known as science. Scientists tell us that science means clear thinking. When we

discipline the mind in concentration, objectivity, detachment, and penetration, we are able to get at the truth of nature. Vedānta also discusses its own method of arriving at the truth hidden in experience; and there we find the same characteristics coming up: clarity, objectivity, penetration. The subject of study either in science or in Vedānta is experience—whatever is experienced by man—the universe of man's experience. As both science and Vedānta have studied the universe of experience calmly, objectively, dispassionately, they have given us a body of insights which are akin to each other. Therefore a relevant question arises: Why should there be two different studies, two approaches, two disciplines? Why not have only science? Why bring in Vedānta at all? Yes, there is need for both. Experience that is the subject of study is so varied that one discipline cannot exhaust the whole of it. Even in one and the same discipline of positive science there are different fields of investigation: physics, chemistry, biology, psychology, astronomy, and so on. Each department takes a certain segment of experience and studies it. Behind all these studies there is a common

understanding that the world that is studied is one. So far as the world of space and time is concerned, so far as the world revealed by the senses is concerned, we have the various departments of modern science giving us a body of insights after penetrating study—insights which give us knowledge of and control over external nature. This is the achievement of science ever since man appeared on the scene, and more especially during the last few centuries. Its theoretical and practical achievements are evident everywhere today.

What more is there to know? Vedānta also asked this question long ago. It is the eternal glory of the Vedānta that the great thinkers of the Upaniṣads grappled with these questions: What is this universe? What is man? What is his destiny? Long ago they discovered that the universe of experience consists of two broad categories, the subjective and the objective. It is important to remember that this idea is basic to an understanding of Vedānta and to an understanding of whither science is going today. Now, when we apply this classification to the whole universe we get the corollary that modern

science is the study of one of the two categories, namely, the objective field. But modern science is also trying to understand the subjective field. Psychology is one such science. But western psychology has suffered from too great dominance by physiology. By resorting to time and space methodology we get a knowledge of the 'without' of things, but not of their 'within'. Much of psychology in the West is behaviouristic psychology; it is a study of the human mind through the study of human behaviour. But western psychologists have also tried to break from this kind of limitation and have developed, through psychoanalysis, the beginning of what is called depth psychology. Why not carry our study of the mind deeper than its surface waves of behaviour? Let us see by introspection into its depths. Here we have the beginnings of depth psychology. This is just the beginning of a great movement in modern psychology which, if continued steadily and penetratingly, will bring it to the truth of the real nature of man which Vedānta reached ages ago in India—the eternal, undying Ātman.

THE STUDY OF EXPERIENCE AS A WHOLE

So far as the seers of the Upaniṣads are concerned, as far as Vedānta is concerned, they directly entered into this study of the 'within' of things. Very early they discovered that the world revealed to us by the study of the data brought by the five senses is only a small fraction of total existence. It gives us knowledge only of the 'without' of things, which is but a thin layer of total reality. This conclusion is justified and validated by modern scientific investigation as well. Thus the entire scope of science becomes limited, according to the conclusion of modern science itself. And yet science cannot be limited. The departments of science such as physics, chemistry, biology, astronomy can be limited, but not science itself. For a sincere critical study of experience as a whole is the function of science, and we have already said that the universe of experience is one whether studied by sciences or by any other discipline; Reality is one whether approached from without or within. This was exactly the objective that was kept before human knowledge by the thinkers of

the ancient Upaniṣads, the knowledge of the totality of Reality, the unification of the knowledge of the not-Self, which is science, with that of the Self, which is religion. *Kṣetrakṣetrajñayor jñānam yat tat jñānam mataṁ mama*—‘The knowledge of the *Kṣetra* (not-Self) and *Kṣetrajña* (Self) is true knowledge in my opinion’, says Kṛṣṇa in the *Gītā* (XIII.2).

We find this spirit of universality coming out of the very word ‘Vedānta’. Veda means ‘knowledge’, sincere critical knowledge, relating to truth, and not any man’s opinion. Vedānta means the entire process of knowledge carried to its ultimate conclusion, the *anta*, the ‘end’, of knowledge, the consummation of knowledge. And the Upaniṣads discovered the truth that knowledge belonged to two categories, *aparā vidyā* and *parā vidyā*. Knowledge of the world of experience that is revealed through the senses is called *aparā vidyā*—ordinary knowledge. This is science, which ‘gives us only knowledge of structural form and not knowledge of content’, in the language of Eddington. Great thinkers of science tell us today that what science gives us is only a conceptual,

shorthand report of what is in the universe; but we are still far away from reality, from the stuff of the universe, they say. The world revealed by twentieth century science, says Sir James Jeans, is an abstract world far far removed from the world of familiar experience. In Einstein's theory of relativity we combine space and time which gives us the space-time continuum, of which all the events and entities of the world are only various configurations. In this way, the world revealed by twentieth century science is a strange unfamiliar world which lies below the surface of the familiar world of sense experience. The positive sciences may not be able to penetrate to the depth; but science as knowledge can go deeper and deeper until it reaches the very depth of Being.

For the word 'science', too, means knowledge, verified knowledge, derived from a sincere, critical study of experience, experience at all levels. The word 'Veda', however, carries deeper significance. It also means verified knowledge derived from a sincere, critical study of experience, but in the Veda concept such study has continued beyond the universe of space and time into the field of

the 'inside' of things. This knowledge of the 'inside' of things is what makes this study the 'Veda-anta', the *anta* or end of Veda or knowledge; it thus rises to the level of *parā vidyā*, supreme knowledge or most excellent knowledge, wisdom. All the sciences and arts, including sacred books like the Vedas, belong to *aparā vidyā*, says the *Muṇḍaka Upaniṣad* (1.i.5), because they give us only knowledge of structural form, knowledge of words and not knowledge of the content and meaning of things. *Parā vidyā*, on the other hand, is that knowledge by which we understand that imperishable reality behind this world of change, the imperishable content of this perishable structural form that we see as the universe. *Atha parā yayā tat Akṣaram adhigamyate*, as the *Muṇḍaka Upaniṣad* (I.i.5) has put it. This is what enabled Vedānta to have a grip on the totality of experience; it is strong and firm because it is deep and comprehensive. It accepts science but goes beyond it as well. It challenges science today to be more scientific, to penetrate deeper and deeper into experience and reach out to the Truth that lies hidden in the depth. This is what

Vedānta did through Swami Vivekananda in the modern age. Very often some modern scientists just brush aside inconvenient facts revealed from man's inner life. But bolder scientists have arisen in this twentieth century who are prepared to face these facts and endeavour to understand their meaning. And their conclusions find a strong effect of endorsement in the insights of ancient Vedānta.

A SELF-EVOLVING CAUSE

Vedānta and modern science are thus close to each other in spirit and temper; both are spiritual disciplines; they are also close to each other in their objectives and in very many of their conclusions as well. Even in the cosmology of the physical universe, we find so many points of contact. The fundamental position in the cosmology of both science and Vedānta is what Swami Vivekananda calls the postulate of a self-evolving cause. Vedānta says that there is one self-evolving cause, Brahman, behind the universe. Science says that behind this universe there is one self-evolving cause, the background material, in the words of Fred

Hoyle. Both believe in the theory of a cosmic evolution. There are a number of such similarities. The truths expounded in the Upaniṣads are impersonal, *apauruṣeya*, not deriving sanction from any person. Scientific truths are similarly impersonal, objective, not deriving sanction from any person. Because they are impersonal, they are universal, and provide a clear insight into the nature of the world. That is science.

The Indian sages also studied experience. In the beginning they studied the world of outer experience. And they found that that world—the earth and the celestial bodies, and everything on earth, including the human body and mind—is a world of change, a world in constant flux. They asked one fundamental question: What is it which is changeless in this world of change? Where shall we seek for the eternal, changeless Reality which seems to be hidden somewhere in experience? Not outside certainly, they concluded. Let us search inside, let us study the wonderful thing called ‘man’, and that wonderful part of him known as awareness, consciousness. In the Upaniṣads we trace the study as it advances step by step, in

the most dispassionate and objective spirit. It did not stop till it wrested the answer from nature and arrived at the tremendous conclusion as to what exactly is the nature of man. Man in his true nature is the Ātman, the Self, birthless and deathless, pure and perfect. The universe also is this Ātman. It is spiritual through and through. This insight and the method behind it is Vedānta.

The great teachers did not, however, say: Simply depend upon us; believe what we say. That would have made them dogmatic and their approach unscientific, like the teachers of dogmatic religions. On the contrary, they constantly exhorted: Try to experiment, try to realize and validate for yourself what we have seen. The profound vision of the glory of human nature is open to realization by everyone; for it is the birthright of one and all.

‘Hear ye, children of immortal bliss; even ye that dwell in the celestial regions! . . . I have *realized* this Infinite Being, of the brilliance of the sun and beyond all darkness. Realizing Him alone you shall be saved from death again and again. There is no other

way to emancipation', thus sang the sage of the *Śvetāśvatara Upaniṣad* (II. 5, III. 8).

The language, therefore, of the Vedānta is verification, realization, experiment. This is, of course, the true language of science. Come and see, is what the Buddha said. What did Sri Ramakrishna say to Swami Vivekananda? 'I have seen God and you can also see Him. Experiment for yourself.' The language of religion, therefore, is the very language which is so familiar to us in modern science, the language of verification. And the Vedānta tells us that if we realize the truth of the Ātman, our inner Self, our whole life will be changed. We shall realize our infinite nature; we shall be filled with bliss. The Vedānta throws this challenge before man—the challenge to realize the truth for himself. The Upaniṣads were fired with the passion to discover truth and to show the truth in life. Truth and more truth, that is the way to happiness and welfare. The advancement of the knowledge of truth and the alleviation of human suffering—these are the two objectives of both modern science and the Vedānta.

'You can understand the true spirit neither

of science nor of religion unless seeking is placed in the forefront', says Eddington (*Science and the Unseen World*).

THE EVOLUTIONARY VISION

When we study the development of science during the last hundred years, we can trace the higher reaches of science slowly appearing on the horizon, and the slow emergence of a non-materialistic outlook in science. In concluding I would like to refer to this. Nature, which is the subject-matter of scientific investigation, is mortal. But, within nature, science is already sensing something immortal, and some scientists are trying to discover that. In 1959 was held the celebration of the centenary of Darwin's publication of *The Origin of Species*. Under the auspices of Chicago University, eminent scientists held a symposium on 'Evolution after Darwin'. The address given by Sir Julian Huxley as the General President of the symposium is very remarkable in that it shows that in the picture of the physical universe which science upheld till now, and even in the picture of the inner universe which we experience within each

one of us, and which was studied by nineteenth-century science entirely from the viewpoint of that physical universe—in that picture is appearing a vent, a crack, through which we are able to see, as a result of the last hundred years' developments in the evolutionary theory, the glimmering of the mystery that lies in the depth of the universe. The opening address given by Huxley bears a very picturesque and meaningful title, 'The Evolutionary Vision'. He said that nature, blind and wasteful in her long evolutionary experience, had suddenly become self-aware in her latest product, man. This nature, starting as mere cosmic dust, and passing through various stages of cosmic evolution, entered the biological stage by becoming a living cell, and continued to evolve and develop, first a nerve fibre, then the nervous system, and lastly the cerebral system which, in the stage of man, had assumed a new dimension through the development of a new field of awareness, namely self-awareness.

All animals have awareness of the outer world, but only man has awareness of the inner world. This has exposed a wonderful

dimension in the heart of nature which it is the duty of science to explore. The scientific need for this exploration is backed by the entire development of biology during the last hundred years. In the language of the late paleontologist, Teilhard de Chardin, 'we do realize today that the universe has not merely a "without" but also a "within". In man, nature has disclosed a 'within' view of itself by itself. This recognition was lacking in science till now; and its recognition now is bound to put modern science on the track of that deepest mystery of all existence—the true Self of man. Man appears as a miniature edition of nature; and in man, with his mysterious properties of thought, ego, self-awareness, and moral awareness, the scientific mind has got scent of the deep mystery of nature thus revealed.

And this was what Vedānta succeeded in discovering ages ago in India—the 'within' of the universe, the *pratyak rūpa* of the universe, through the *pratyak rūpa* of man. The other *rūpas* we all know, our senses reveal them to us. But true knowledge of the *pratyak rūpa* (the form of the Reality deep within) comes to us only when we

undertake the necessary intellectual training and undergo the requisite moral disciplines, such as controlling the senses and the mind, and concentration on that inner *svarūpa*. This is what the great sages of ancient India did, and a few descriptions of their experiments, very simple condensed descriptions, occur in the Upaniṣads. There is one in the *Kaṭha Upaniṣad* (IV.1). A certain bold spirit said to himself: 'Let me try to understand what is inside.' The mind and the senses have the natural tendency to turn outwards. It is a mighty task to turn them inwards. But this man was a *dhīra*—a hero, courageous and intelligent. And he did it. And when he did it, great was his joy and amazement; for he realized the high dimension of his personality, of all human personality, namely, the supremely divine, eternal, deathless, changeless Reality within his own Self. He found the *pratyag-ātman*, the Inner Self, which is also the Self of the universe, by the tremendous technology of turning the mind and senses within. By training the mind, and turning its energy inwards, step by step, in a scientific, detached manner—it is a stern dis-

cipline, like the sharp edge of a razor (*Kaṭha Upaniṣad*, III. 14)—we find a new world opening up, a new dimension of the human personality, the birthless and deathless Ātman, the Self, of the nature of pure awareness. That was the work that the Upaniṣads did, that was the work that Vedānta did, and that is the work that India has continued to do even to our time; and the latest of such explorers of the inner world were Sri Rama-krishna and Swami Vivekananda.

THE EDUCATIONAL GOAL AND METHOD

Though common in objective, spirit, and temper, science and Vedānta have different fields. Vedānta does not interfere in the actual day to day life of the individual, what we are to do about our food, shelter, and clothing. There science is our best guide and mentor, because it is dedicated to the pursuit of truth in that field of human awareness—the not-Self, and dedicated also to creating, through its technology, conditions necessary for man's life fulfilment. But after building a house and doing everything to ensure our welfare, what shall we do next? These are certainly not ends in themselves.

So Vedānta tells us that we should utilize these outer advantages to press forward and continue our search for eternal values, for the meaning and significance of existence, by striving to understand our true Self. This is the goal of evolution; and man can hasten it and need not depend on nature's slow and wasteful ways, say modern biology and ancient Vedānta. But this is the special contribution of Vedānta to man's happiness and welfare—his spiritual education. Hence a combination of science and spirituality must be the basis of education. As Swami Vivekananda defines the educational goal and method: 'What we want are western science coupled with Vedānta, *brahmacarya* as the guiding motto, and also *śraddhā* and faith in one's own self.' ('Conversations and Dialogues', *Complete Works*, Vol. V, p. 366, 7th edition)

The great sages who discovered the truths of the inner world were great scientists in their own way, and the result of their labours on behalf of truth and human welfare is the body of Vedāntic insights which are impersonal, objective, and universal. The modern thinkers of the West have similarly given us

in modern science a body of truths, relating to the external world, which are also impersonal, objective, and universal; and these two have come close to each other today. In Vivekananda we have the blending of the spirit of science with the spirit of religion. With the assimilation of science and spirituality, millions and millions of young people will become rich personalities; they will experience in themselves, as Swami Vivekananda did, the harmony of all human energy, where no two energies conflict with each other, but blend with the rest to create a pattern of all-round perfection.

About this perfection of character in Vivekananda, Romain Rolland writes: 'In the two words equilibrium and synthesis Vivekananda's constructive genius may be summed up. He embraced all the paths of the spirit: the four Yogas in their entirety, renunciation and service, art and science, religion and action from the most spiritual to the most practical. Each of the ways that he taught had its own limits, but he himself had been through them all, and embraced them all. As in a quadriga, he held the reins of all four ways of truth, and he travelled

towards Unity along them all simultaneously. He was the personification of the harmony of all human Energy.'

This is the objective of true education and of true religion, according to Swami Vivekananda who sums up the scope of man's total education, secular and spiritual, in a brief testament of Vedāntic faith, in which secular science and spiritual science become absorbed in a comprehensive concept of religion, understood in the light of the Indian idea of Dharma:

'Each soul is potentially divine.

'The goal is to manifest this divine within by controlling nature, external and internal.

'Do this either by work, or worship, or psychic control, or philosophy—by one, or more, or all of these—and be free.

'This is the whole of religion. Doctrines, or dogmas, or rituals, or books, or temples, or forms, are but secondary details.'

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