

The Ramakrishna Movement and Scientific Temper

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Some of my close friends' eyebrows were raised when they knew that I have chosen the above title. Oblivious of the difference between the Math and the Mission, some of them presumably think that the Ramakrishna Mission is a quite religious place for meditation and prayer for attaining spiritual liberation. To others, the Mission is a place for serious philosophical discourse, and it keeps no track with science. To them, science is something grossly materialistic and mundane, dealing with the easily identifiable domain of physics, chemistry, biology and even technology, transgressing into the current interest areas of space, nuclear science, information technology, biotechnology, genetic engineering and so on. It is difficult for my friends to imagine the Ramakrishna Mission delving into the labyrinth of mathematical equations, theories and applications of these advanced areas of science and technology.

Science and scientific temper

In modern concept, science is however not represented by mathematical equations or laboratory experiments nor by Newton's laws or Einstein's theory. Science is now considered to be a process of assimilation of knowledge and information that is obtained by observation, testing and interpretation of natural world in a logical and orderly manner. With this notion, many scientists and sociologists have tried to define science in

different manners. Probably the best definition comes from James Randi¹, who is not a practising scientist but a stage magician and scientific skeptic, best known as a 'challenger of paranormal claims and pseudoscience'. To Randi, 'Science is best defined as a careful, disciplined, logical search for knowledge about any and all aspects of the universe, obtained by examination of the best available evidence and always subject to correction and improvement upon discovery of better evidence.'

This definition has several keywords. The first is the 'logical search' which leads to a discovery process in a step-by-step search. The second is 'examination of the best available evidence' which leads to the requirement of experimental verification. The third is 'subject to correction and improvement upon discovery of better evidence', which puts stress on the dynamism of science and the need for continuing research. All these keywords converge to the logical thought process that leads to the concept of 'method of science' or 'science of science'.

'Scientific temper' is a mental function to enable thinking and acting with the logical process that demands search for knowledge and formulation of laws or theories in the following manner:

Stage 1: Observation and identification of problem;

Stage 2: Formulation of hypothesis;

Stage 3: Experimental verification with same results in repeated experiments;
 Stage 4: Establishment of laws or theories.

This concept of scientific temper compares well with the seventh aphorism of Patanjali's first chapter that indicates what constitutes the proofs²:

Stage 1: Direct perception (*prataksha*);
 Stage 2: Inference (from observations);
 Stage 3: Competent evidence (authorities);
 Stage 4: The proof.

The first two stages appear to be the same in the modern and ancient concepts of scientific temper. In the third stage, the ancient system accepts competent evidence from the authorities, but the modern system lays stress on experimental verification. Endowed with a true scientific temper, Swami Vivekananda emphasized the need for proper investigation before discarding various extraordinary mental phenomena when he stated: 'It is not the sign of a candid and scientific mind to throw overboard anything without proper investigation. Surface scientists, unable to explain the various extraordinary mental phenomena, strive to ignore their very existence.'³

And then he insisted on experimental verification of the effects of Rāja yoga in the following words: 'What little I know I will tell you. So far as I can reason it out I will do so, but as to what I do not know I will simply tell you what the books say. It is wrong to believe blindly. You must exercise your own reason and judgment; you must practise, and see whether these things happen or not. Just as you would take up any other science, exactly in the same manner you should take up this science for study.'⁴

With a rather strong statement, 'It is wrong to believe blindly', Swamiji wanted to come out of the traditional dependence on

authoritative evidence, and insisted on verification of results through actual practice. This is a true scientific temper demonstrated not by Swamiji alone, but by the *sangha* he left behind as his legacy. Sister Nivedita compared the process of Rāja Yoga as a laboratory experiment with the body itself as the laboratory and the process of controlling the circulation of blood as a physiological experiment. Moreover, she directly brought in the concept of method of science in her analysis as she wrote:

Another point on which this eastern science—assuming its credibility—challenges comparison with that of the West, is the question of method. In the very nature of the investigation, the human body is itself the laboratory, and all instruments, save those found within, are excluded. But the whole research claims to be built upon experiment. When we read that the heart itself can be brought under such control that the circulation of the blood can be regulated or stopped at will, we catch a glimpse of the courage and devotion to knowledge that the subject must have demanded in its pioneers.⁵

It is not difficult to discover the root of this scientific temper imbibed in the teaching of Sri Ramakrishna himself. The Master had realized that Brahman alone is real and the world illusory. 'By keeping his mind six months on the plane of the non-dual Brahman, he had attained to the state of the *vijnāni*, the knower of Truth in a special and very rich sense, who sees Brahman not only in himself and in the transcendental Absolute, but in everything of the world. In this state of *vijnāna*, sometimes, bereft of body-consciousness, he would regard himself as one with Brahman' . . .⁶

Apparently Sri Ramakrishna's concept of *vijnāna* is different from science that we know of today, but apart from the Vedantic realization it is also an expression of

scientific temper which is nothing but attainment of knowledge through a logical process. The Master established clear distinction among the terms *ajñāna*, *jnāna*, and *vijnāna*. According to him, *ajñāna* is assorted mundane information, *jnāna* is the knowledge that God exists in all beings, *vijnāna* is the very special knowledge, the realization that God alone has become the universe and all living beings. 'He who is aware of knowledge is also aware of ignorance. . . . If a thorn has entered your foot, get another thorn and with its help take out the first; then throw away the second also. . . . That is why one should acquire *vijnāna*. . . . The awareness and conviction that fire exists in wood is *jnāna*, knowledge. But to cook rice on that fire, eat the rice, and get nourishment from it is *vijnāna*'.⁷

Exposure to modern science

Apart from looking at the world with scientific temper, did Swami Vivekananda, and later the Ramakrishna Movement, pay any attention to modern science and technology parallel to their religious and devotional pursuits and philosophical discourses for self-liberation? The answer is affirmative and very strongly affirmative. The reason lies in Swamiji's conviction that it is necessary to love the poor in order to serve God. To Swamiji, science and technology were powerful tools of social transformation. He wanted to educate 'the poor and low' through exposure to modern science with the help of simple scientific teaching aids. Back in May 1894 he tried to motivate his disciple Alasinga Perumal in Chennai to undertake the activities for mass communication as he wrote: 'Try to get a fund, buy some magic lanterns, maps, globes etc. and some chemicals. Get every evening a crowd of poor and low, even the Pariahs,

and lecture to them about the religion first and then teach them through the magic lantern and other things, astronomy, geography etc. in the dialect of the people. Train up a band of fiery young men.'⁸

Swami Vivekananda cited the proverb 'if the mountain does not come to Mohammad, Mohammad will go to the Mountain'. For this, a dedicated band of young people have to go to remote areas not only with the message of religion, but also with the light of education. To Swamiji, public education was very important for nation-building and he wanted to take the help of scientific gadgets for what is now known as audiovisual education of the poor, and probably the illiterate people. In June 1894 he wrote to Haridas B. Desai: Now suppose the villagers after their day's work have come to their village and sitting under a tree or somewhere are smoking and talking the time away. Suppose two of these educated Sannyasins get hold of them there and with a camera⁹ throw astronomical or other pictures, scenes from different nations, histories etc. Thus with globes, maps etc—and all this orally—how much can be done that way Dewanji? It is not that the eye is the only door of knowledge, the ear can do all the same.¹⁰

Then came Swamiji's connection with hard-core science when he met Nikola Tesla, a renowned electrical engineer of his time in the USA. Tesla had invented many useful devices including a system of arc lighting (1886), the alternating current motor, power generation and transmission systems (1888), systems of electrical conversion and distribution by oscillatory discharges (1889), and a generator of high frequency currents (1890), to name a few. In 1891 Tesla patented what he thought one day might become his most famous invention. It is the basis for the wireless

transmission of electrical power and is known as the Tesla Coil Transformer. At a party given by Sarah Bernhardt, Nikola Tesla first met Swami Vivekananda. The Indian Swami offered him a treasure trove of Vedic wisdom about the matters of energy and matter, about how the Vedic science considered the universe to be charged. Tesla promised the Swami that he would mathematically demonstrate that *prāna* and *ākāsha*, force and matter, could be equated to potential energy in some fashion. There is no evidence on whether this mathematical demonstration was ever done, but Swamiji was quite impressed with Tesla. In February 1896, he wrote to E. T. Sturdy on this meeting: 'Mr Tesla was charmed to hear about the Vedantic Prana and Akasha and the Kalpas, which according to him are the only theories modern science can entertain. . . Mr Tesla thinks he can demonstrate that mathematically that internal linkforce and matter are reducible to potential energy. I am to go see him next week to get this mathematical demonstration'.¹¹

Tesla's concept, and probably the demonstration too, of wireless transmission of electricity might have enthralled Swamiji, who chose to draw analogy in his treatise on Rāja Yoga where he wrote: 'Taking the analogy of electricity, we find that man can send a current only along a wire, but nature requires no wire to send her tremendous currents. This proves that the wire is not really necessary, but that only our inability to dispense with it compels us to use it'.¹²

The interaction was hardly one-sided. After meeting Swamiji and after continued study of the ancient Indian view of the mechanisms driving the material world, Tesla began using the Sanskrit words *Ākāsha*, *Prāna*, and the concept of a luminiferous ether to describe the source, existence and construction of matter.¹³ In his

personal life Tesla started practising the Yoga that he learned after his meeting with Swamiji as indicated in his letter: 'Yes, I sleep only two hours a day, but when I sleep, I sleep well, artistically, because sleeping is an art, just like deep breathing. . . which must be learned. That is one of the secrets of the East. . . which for me is not a secret. After the sleep, however short. . . I have to do some mind exercise in order to balance. . . the newly received life energy.'¹⁴

Science in Ramakrishna Mission

On 1 May, 1897, Swamiji held a meeting with the followers of his Master, both monks and household devotees, at Balarambabu's house to establish the Ramakrishna Mission and on 5 May, 1897 laid down its Aims and Methods of Action as hereunder:

The aim of the Sangha is to preach those truths which Shri Ramakrishna has for the good of humanity, preached and demonstrated by practical application in his own life, and to help others to put these truths into practice in their lives for their temporal, mental and spiritual advancement.

Its Methods of Action are:

- a) To train men so as to make them competent to teach such knowledge or sciences as are conducive to the material and spiritual welfare of the masses;
- b) to promote and encourage arts and industries; and
- c) to introduce and spread among the people in general Vedantic and other religious ideas in the way in which they were elucidated in the life of Shri Ramakrishna.

It is not difficult to note how a balance was struck between the temporal and spiritual advancement in the aim of the *Sangha*, and between material and spiritual welfare of the masses in the methods of action.

Swamiji laid stress on science and industries on the one side and Vedantic and other religious ideas on the other side. Following the footsteps of Swamiji, the Memorandum of Association of the Ramakrishna Mission was formulated on 4 May, 1909, with the following clauses *interalia*:

- 2(b) (i) *To impart, promote and undertake the study of and research in the arts, sciences, technologies and industries in all their branches; both basic and applied.*

- (ii) *To undertake scientific research in the area of medical sciences.*

- (c) *To train teachers in all branches of knowledge above mentioned and enable them to reach the masses.*

So whatever Swamiji taught and talked about the role of science in developmental process, he did not fail to institutionalize the same right from the inception of the Ramakrishna Mission. In addition, he nurtured a vision of setting up a university for cultivation of philosophy and religion along with a full-fledged technical institute and he put priority to the technical institute when he wrote in a place: 'Now the aim is to gradually develop this Math into an all-round university. In it, along with the cultivation of philosophy and religion, a full-fledged technical institute will have to be established. This is to be done first. Other departments may be gradually added later on'.

In the same place Swamiji went on writing '*this Math on no account be reduced to a Babaji's Thakurbari?*' (with a footnote attributed to the publisher of the document: a place of mere ritualistic worship carried on by devotees for personal liberation only). Till the last day of his life Swamiji fondly toyed with his dream of this university for 'new knowledge and science' as we find in the account given by Swami Premananda. He said that on the last day of his life, Swamiji told him to set up a university

where new knowledge and science may be practised along with the upkeep of tradition. While walking through the Belur village, Swamiji showed the plots of land which have to be acquired for the establishment of this university.¹⁵

After institutionalizing the role of science in the methods of action of the Mission, Swamiji set on actions. 'He wanted to create a new brand of monks who would take not only the traditional vow of personal salvation, but also a vow of service to the poor, the sick, the hungry and the ignorant'.¹⁶ Swamiji warned: 'for want of learning, religious orders became degraded. Therefore learning should always be cultivated.' He therefore started a rigorous training programme for the sannyasins in the Math. Swami Prabhananda has given a brief account of the programme:

In the scheme of studies both spiritual and secular subjects found an honourable place. Scriptures, history, western philosophy, the physical sciences, physiology, anatomy etc. were taught. The monastics were also trained in music, cooking, gardening, animal husbandry, and so forth. . . . Guest speakers were invited to speak occasionally on specific subjects. Dr Netai Halder spoke on the topic Digestion, The Structure of the Heart, and The Circulation of the Blood. Swami Saradananda gave a series of talks entitled Physiology, and Dr Mill on Mental Healing. One specialist gave a talk entitled Anatomy of the Human Body and another entitled Photography.¹⁷

Some of his brother-monks were feeling uneasy about Swamiji's training programme on science, but the latter was serious about his scheme. Observing that the lectures on science appeared difficult to some of the young monks, a separate tutorial class was arranged for the less advanced group. In this class, studies, discussions, debates, question-answer sessions, lectures, demonstrations,

etc. enriched their knowledge, secular and sacred.¹⁸

Science and Religion

In 1893 Swamiji travelled from Japan to America with Jamshedji Tata also in the same vessel. Swamiji asked Jamshedji why he was travelling. Jamshedji said that he wanted to bring steel industry to India. Swamiji blessed him and then pointed out that steel technology had two components—one is steel science and the other is manufacturing technology. What can you bring to this country in material technology if you do not build material science within the country? asked Swamiji. This advice left a deep impression on Jamshedji's mind. Several years after, he decided to build a research institute on fundamental science¹⁹ with a dedicated team of scientists. Inspired by the news of the establishment of the Ramakrishna Mission, Jamshedji sent a letter on 23 November 1898 to Swami Vivekananda seeking his leadership for a campaign for linking asceticism with science. He wrote:

It seems to me that no better use can be made of the ascetic spirit than the establishment of monasteries or residential halls for men dominated by this spirit, where they should live with ordinary decency, and devote their lives to the cultivation of sciences—natural and humanistic. I am of opinion that, if such a crusade in favour of an asceticism of this kind were undertaken by a competent leader, it would greatly help asceticism, science, and the good name of our common country; and I know not who would make a more fitting general of such a campaign than Vivekananda.²⁰

After Swamiji's departure, Sister Nivedita took up this noble cause and actively campaigned for 'Mr Tata's scheme' with a strong emphasis on the need for 'the

light of modern science' for solving the country's problems in agriculture and commerce. She wrote:

If India has to live and prosper and if there is to be an Indian nation which will have its place in the ranks of the great nations of the world, the food question must be solved first of all. And in these days of keen competition it can only be solved by letting the light of modern science penetrate every pore of the two giant feeders of mankind—agriculture and commerce. . . . The ancient methods of doing things can no longer hold their own against the daily multiplying cunning devices of the modern man. He that will not exercise his brain, to get out the most from Nature by the least possible expenditure of energy must go the wall, degenerate and reach extension. There is no escape. Mr Tata's scheme paves the path of placing into the hands of Indians this knowledge of Nature.²¹

In his lectures and writings, Swami Vivekananda extensively deliberated on the interaction of science and religion. This was followed by other leaders of the Ramakrishna Movement. Some of the quotes, which speak for themselves deserve careful attention:

Just as the law of gravitation existed before its discovery, and would exist if all humanity forgot it, so is it with the laws that govern the spiritual world. The moral, ethical, and spiritual relations between soul and soul and between individual spirits and the Father of all spirits, were there before their discovery. . . .²²

. . . those expressions of religion whose heads, as it were, are penetrating more into the secrets of heaven, though their feet are clinging to earth, I mean, the so-called materialistic sciences.²³

Religion deals with the truths of the metaphysical world just as chemistry and the other natural sciences deal with the

truths of the physical world.²⁴

Science and religion are both attempts to help us out of the bondage; only religion is the more ancient, and we have the superstition that it is the more holy.²⁵

In what then do they differ? In application.

A good example of interaction of science and religion is highlighted in Acharya Jagadish Chandra Bose's demonstration of the response of plants to external stimulus and the so-called metal fatigue. On 10 May 1901, after concluding his demonstration before the Royal Institution, J C Bose underscored the interrelationship between the living and the non-living when he said: 'I have shown you this evening autographic records of the history of stress and strain in the living and non-living. How similar are the writings! . . . So similar indeed that you cannot tell one apart from the other. Among other phenomena how can we draw a line of demarcation and say, here the physical ends, and there the physiological begins? Such absolute barriers do not exist'.²⁶ In conclusion, J C Bose cited Upanishadic concept of the One and the Eternal Truth: 'It was when I came upon the mute witness of these self-made records and perceived in them one phase of a pervading unity that bears within it all things. . . it was then that I understood for the first time a little of that message proclaimed by my ancestors on the banks of the Ganges thirty centuries ago: "They who see but One in all the changing manifoldness of this universe, unto them belongs Eternal Truth, unto none else, unto none else!"'²⁷

Sister Nivedita dealt with J C Bose's experiment with great enthusiasm,²⁸ and further details are observed in 'Science and Religion' of Swami Ranganathananda who noted: 'His (Bose's) work in Physics led him imperceptibly to botany and physiology,

which convinced him of the tenuous nature of the boundary line between "non-living" metals and "living" plants and humans, and of the truth of the "fundamental unity among the apparent diversity of nature."²⁹ Through J C Bose's work, Swami Ranganathananda found much larger acceptance of the messages of Upanishad by the scientific community at large in the West, when he observed: 'The Indian vision of the spiritual unity of all existence is, accordingly, receiving responsive echoes from increasing numbers of thinkers and scientists in the post-war West. Books about nature, upholding the Indian vision and quoting Upanishadic passages, are coming out in the West more and more. One such recent book is *The Secret Life of Plants* by Peter Tomkins and Christopher Birds'³⁰. Swami Ranganathananda synthesized the positive science and science of spirituality for total life-fulfilment of humans by saying: 'If man can have the help of the positive sciences to create a healthy external environment, and the help of the science of spirituality to create a healthy internal environment, he can hope to achieve the total life-fulfilment; not otherwise. This is the testament of the Upanisads'.³¹

Synthesis of ancient and modern science

It has been discussed earlier how Nikola Tesla, the great scientist who specialized in the field of electricity, was much impressed to hear from Swami Vivekananda his explanation of the Sāṅkhya cosmogony and the theory of cycles given by the Hindus. Tesla was particularly struck by the resemblance between the Sāṅkhya theory of matter and energy and that of modern physics. Swamiji was hopeful that Tesla would be able to show that what we call matter is simply potential energy because that would reconcile the teachings of the Vedanta with modern

science. Swamiji realized that 'In that case, the Vedantic cosmology [would] be placed on the surest of foundations'. The harmony between Vedantic theories and Western science was explained by him in the following diagram³²:

BRAHMAN = THE ABSOLUTE
 MAHAT OR ISHVARA = PRIMAL
 CREATIVE ENERGY
 PRĀNA and ĀKĀSHA = FORCE
 and MATTER

Sāṅkhya cosmogony has been elaborately explained in the context of modern science by Brajendranath Seal³³ (1864-1938) in his book *The Positive Sciences of the Ancient Hindus*, first published in 1915. *Sāṅkhya-Pātanjala* gives an account of cosmic evolution based on the conservation, transformation and dissipation of energy. Sāṅkhya traces the manifested world to an unmanifested ground, *Prakriti*, which is formless and undifferentiated, limitless and ubiquitous, indestructible and undecaying, ungrounded and uncontrolled, and without beginning and end.

Prakriti is an infinite continuum of infinitesimal Reals, termed *gunas* of three kinds—

sattva (the intelligence-stuff, the essence which manifests itself in a phenomenon),

rajas (the energy-stuff having a tendency to do work or overcome resistance), and *tamas* (the matter-stuff characterizing mass or inertia which counteracts the tendency of *rajas* to do work, and of *sattva* to conscious manifestation).

The starting-point in the cosmic history is a condition of equilibrium or equipoise consisting in a uniform diffusion of the *Gunas*. The transcendental (non-mechanical) influence of the *Purusha* (the Absolute) puts an end to this arrest and initiates the process of creation. Evolution begins with the disturbance of the original equilibrium³⁴.

The first *tanmātra* originated from the rudiment matter (*bhutādi*), the individual but still indeterminate potential-less mass in *Prakriti*, under the action of energy by a process of disintegration and emanation in the menstruum, or surrounding medium of unindividuated cosmic super-subtle mass *Mahat*. This first subtle matter, the first result of mass disintegration and energy transformation, is charged with the sound-potential, producing what is called *shabdatanmātra*. This subtle matter receives an accretion of Mass from the rudiment matter *bhutādi* and by condensation and collocation evolves the *Ākāshabhuta*. Subsequent *Tanmātras* and *bhutas* are evolved in a similar manner³⁵.

The Nyāya-Vaisheshika lays down the method of science, and elaborates the concepts of mechanics, physics, and chemistry. The Nyāya-Vaisheshika concept of atoms, attributed to Kanād, and about 2500 years old, are: spherical in shape, infinitesimally small, in eternal motion and indivisible. The first three characteristics are still valid compared to the modern science. The last one was valid until 1939 when Otto Hahn did the splitting of atom.

Swami Vivekananda interpreted the *Sāṅkhya* in a very simple manner to explain how the universe evolved from the initial undifferentiated state of *Prakriti* to the grosser elements of *pancabhuta* in different stages. The first change, he wrote, is called *Mahat*, which literally means the great principle. In the second stage, the substance *Mahat* changes into the grosser matter called egoism. The third change is manifested as universal senses, ie five *tanmātras* and universal fine particles and these last again combine and become this gross universe composed of *pancabhuta* which with ears, skin, eyes, tongue and nose we hear, touch, see, taste and smell. From here Swamiji extended

the principles of Sāṅkhya to our material life. He wrote: ‘This is the cosmic plan according to Sāṅkhya, and what is in cosmos must also be microcosmic. Take an individual man. He has first a part of undifferentiated nature in him, and that material nature in him becomes changed into this Mahat, a small particle of this universal intelligence, and this particle of universal intelligence in him becomes changed into egoism, and then into the sense-organs and the fine particles of matter which combine and manufacture his body.’³⁶

Parallels, in other areas, can also be drawn between the *Sāṅkhya* and modern physics. According to *Sāṅkhya*, the infinitesimals of energy do not possess inertia or gravity and are not therefore material. But they possess quantum (*parimāna*) and extensity (*parichhinnatva*). *Sāṅkhya* considers the ground base (*Prakriti*) of the universe as indestructible, undecaying, without beginning and without end, and does not recognize the role of a creator. This is comparable to the modern concept of the universe as summed up by Carl Sagan: ‘a universe with no edge in space, no beginning or end in time, and nothing for a creator to do’.

Another important topic of deliberations by the modern scientists is the Unity of Forces. Scientists over the centuries have tried to unify the forces of nature at different stages in search of a grand unification as summed up below:

- Newton unified terrestrial gravity and astronomical gravitation.
- Oersted unified electricity and magnetism.
- Maxwell unified all kinds of electromagnetic radiations.
- Einstein unified space and time, mass and energy, but failed to unify GR and QM.
- De Broglie unified waves and particles.

- Salam, Glashow, Weinberg unified electro-weak forces.

- Grand Unification was realized with strong nuclear force

- Super Grand Unification with gravitation is still eluding the scientists.

Scientists are now dreaming about a Theory of Everything (popularly called ToE) to answer all questions, as indicated below, and predict the future:

- How was the beginning of this Universe?

- What is the state of matter within a black hole?

- Is spacetime curved, or is it flat?

- How many dimensions of space and time are there?

- What is the origin and reason of matter and energy?

- Is there a most fundamental particle?

- What happens beyond Planck scales?

- Why is momentum quantized?

- Is the speed of light the fastest speed in the universe?

So the most fundamental search in modern science today is the search for Unity which governs everything in this universe. This was realized by Swami Vivekananda, more than a century back, as we find from his address before the Parliament of Religions in Chicago as early as in 1893:

Science is nothing but the finding of unity. As soon as science would reach perfect unity, it would stop from further progress, because it would reach the goal. Thus Chemistry could not progress farther when it would discover one element out of which all other could be made. Physics would stop when it would be able to fulfil its services in discovering one energy of which all the others are but manifestations. . . Manifestation, and not creation, is the word of science today . . .³⁷

In another place Swamiji drew a parallel

between the teachings of the Upanishad on the Absolute and the search for Unity in modern science:

When the scientific teacher asserts that all things are the manifestation of one force, does it not remind you of the God of whom you hear in the Upanishads: 'As the one fire entering into the universe expresses itself in various forms, even so that One Soul is expressing Itself in every soul and yet is infinitely more besides?' Do you not see whither science is tending? The Hindu nation proceeded through the study of the mind, through metaphysics and logic. The European nations start from external nature, and now they too are coming to the same results. We find that searching through the mind we at last come to that Oneness. . . . Through material science we come to the same Oneness. Science today is telling us that all things are but the manifestation of one energy, which is the sum total of everything which exists. . .³⁸

This reflects Swamiji's scientific temper that he infused in the minds of his followers who picked up torch from him and built the global Ramakrishna Movement.

Search for God—science and spirituality

Following the success of Newton's Laws of Gravity, Marquis de Laplace argued that the universe was completely deterministic. Laplace suggested that a set of scientific laws would allow us to predict everything that would happen in the universe, if only we knew the complete state of the universe at one time. For that matter we just need a time-function equation. This doctrine of scientific determinism was strongly resisted by many people who felt that it infringed on God's freedom to intervene in the world.

Then came Heisenberg's Uncertainty Principle as a fundamental property of the world. One certainly cannot predict future events if he cannot even measure the present

state of the universe precisely. Does the Uncertainty Principle bring in the role of God to determine the future?

In metaphysics and philosophy, a Theory of Everything would have to abide by the further condition of being founded on One thing. This Monism (all beings may ultimately be referred to one category) is necessary if we are to explain the *necessary connection* between the many things that we sense as existing (e.g. mind, language, concepts and interconnected motion of matter in space).

Some people believe that the finding of the ToE could prove or disprove the existence of God. Many theistic people hold a belief that the ToE will never be found. Other theists believe that a ToE would ultimately prove the power of God's intellect to design such an elegant universe, or even generate an unanticipated new concept of God—a pantheist's God that lured Einstein all his life.

Some representative quotes from a Script, a philosopher, a mathematician and a scientist would throw light on the belief about the existence of the One that manifests as the many, both in philosophy and in science:

- Though One, Brahman is the cause of the many. . . Brahman is the unborn (*aja*) in whom all existing things abide. The One manifests as the many, the formless putting on forms.—*Rig Veda*, ca 1500BC

- All things come out of the One and the One out of all things.—Heraclitus, ca 500BC

- Reality cannot be found except in One single source, because of the interconnection of all things with one another. . . . I maintain also that substances, whether material or immaterial, cannot be conceived in their bare essence without any activity, activity being of the essence of substance in

general.—Leibniz, 1670

• I shall never believe that God plays

dice with the world—Albert Einstein's

famous epigram, ca 1930. ■

NOTES AND REFERENCES

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- 3 *Ibid.*, V. I, p. 121
- 4 *Ibid.*, p. 134
- 5 *The Complete Works of Sister Nivedita*, Advaita Ashrama, Kolkata. First Edition, Vol. V, p. 287
- 6 *The Gospel of Sri Ramakrishna*, Sri Ramakrishna Math, Chennai, p. 38
- 7 *Ibid.*, pp. 287-88
- 8 *Letters of Swami Vivekananda*, Advaita Ashrama, Kolkata, 2005, pp. 107-108
- 9 Probably Swamiji wanted to mean the magic lantern, what he wrote to Alasinga
- 10 *Letters of Swami Vivekananda*, pp. 114-115
- 11 *Ibid.*, p. 281-282
- 12 *Complete Works*, Vol. I, pp. 162-163
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- 14 *Ibid.*
- 15 Swami Vasudebananda, *Life and Memoirs of Swami Premananda* (in Bengali), p. 225
- 16 Swami Prabhananda, *More about Ramakrishna*, Advaita Ashrama, Calcutta, 1993, p. 255
- 17 Swami Prabhananda, *The Early History of the Ramakrishna Movement*, Sri Ramakrishna Math, Chennai, 2005, pp. 337-340
- 18 *Ibid.*, p. 340
- 19 Now known as the Indian Institute of Science in Bangalore
- 20 http://archives.iisc.emet.in/iisc_tata_vivek_kalam.htm
- 21 *The Complete Works of Sister Nivedita*, Vol. V, pp. 237-38
- 22 *Complete Works*, V. I, p. 7
- 23 *Ibid.*, Vol. II, p. 69
- 24 *Ibid.*, Vol. VI, p. 81
- 25 *Ibid.*, Vol. VII, p. 103
- 26 Peter Tomkins and Christopher Birds, *The Secret Life of Plants*, pp. 86-87, as quoted in Swami Ranganathananda, *Science & Religion*, Advaita Ashrama, Calcutta, 1992, pp. 79-80
- 27 *The Complete Works of Sister Nivedita*, Vol. V, p. 298
- 28 *Review on Is Matter Alive by J C Bose*, *The Complete Works of Sister Nivedita*, Vol. V, pp. 289-298
- 29 Swami Ranganathananda, *Science & Religion*, Advaita Ashrama, Calcutta, 1992, p. 80
- 30 *Ibid.*, pp. 79-80
- 31 *Ibid.*, pp. 83
- 32 *Letters of Swami Vivekananda*, pp. 281-282
- 33 Brajendranath Seal, a philosopher and historian of science, became a friend of Narendranath Dutta in 1881. Together they became close with the Brahma Samaj. He visited Sri Ramakrishna along with Narendranath, Brajendranath then excelled in teaching and interpretation of philosophy and was recognized as an outstanding reformer of educational institutions. In 1902, Swamiji asked for his help for working out a plan for social service to be organized by the Mission but Swamiji's untimely departure left the work incomplete.
- 34 Brajendranath Seal, *The Positive Sciences of the Ancient Hindus*, Sahitya Samsad, July 2001, pp. 2-5
- 35 *Ibid.*, pp. 21-29
- 36 *Complete Works*, Vol. II, pp. 444-445
- 37 *Ibid.*, Vol. I, pp. 14-15
- 38 *Ibid.*, Vol. II, pp. 140-41

* This article is based on the lecture Dr Ghose delivered at the Institute on 11 February 2010.