Hinduism and Natural Science: Scientific and Religious thinking of the Hindu tradition

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Course Description

1.) Science and Religion — a dialog and historical overview

The evaluation of reality in science and religion, their methods and characteristics, and the changes in the nature of their relationship to each other in the course of history. In the early stages of its development science was closely connected with religious thinking. We could even say that they together took up the task of observing and presenting the world in the most complete way possible. In later ages a new concept was emphasized, according to which science is exclusively privileged to observe reality in an authentic way. The close connection of science and religion ended in the age of enlightenment when they were already considered to apply contrary methods of observing the world. Religion and theological thinking were no longer entitled to dominate over society through their ways of evaluating reality.

Nowadays, at the end of the twentieth century and the dawn of the twenty-first century it can be experienced how both religion and science seek cooperation with each other. The first lecture aims at discussing this subject matter in detail. The discussion of the lectures coming later in the course will be based on the principles composed in this lecture. In the later phases of the course we will be discussing the doctrines and scientific dimensions of a culture, namely Hinduism, in which theological thinking and natural sciences have not been so sharply separated from one another in the course of history, and their relationship have not been drastically damaged even by the Western effect of the nineteenth and twentieth centuries. This subject matter will be specifically discussed in seminar 11.

The discussion of the main subject of the lecture will be based on the observations of Tertullian (160-220), Augustin (354-430), Grosseteste, R. (1168-1253), Bacon, R. (1214-1292), Magnus, A. (1193-1280), St. Thomas of Aquino (1225-1274), Ockham, W. (1285-1349), Bacon, F. (1561-1626), Descartes (1596-
and others, and the birth of modern science will also be discussed. General principles will be presented according to the works of Peacocke, A., Barbour, I. and Brooke, J.H.


2.) A general introduction into Hinduism as a religion. Definitions of basic religious philosophical terms (the Absolute, the living being, material nature, fate and time).

Describing Hinduism as a religious and social system. The status of man (as the observer of the surrounding world) in society according to Hindu scriptures. The classification of society on the basis of the individual’s qualities and his work in accordance with his qualifications. Social orders and spiritual classes in Hindu culture — different chances to acquire knowledge.

The basic religious philosophical notions of Hindu scriptures define each station of observing the whole of existence. Prakriti — material nature, the surrounding world. Jiva — the individual living entity. Karma — fate. Kala — eternal time. Isvara — God, the final controller. As the first steps of final observation and on the way to God, the observation of material nature or human surroundings are emphasized including its construction, functioning and laws. The contemplation on the situation of man and his role in the world is part of this knowledge.
3.) The categories of and brief discussion on the scriptures of Hinduism with special emphasis on their themes and goals. Why do Hindu scriptures pay attention to the scientific observation of the existing world? The relationship between Man and Nature.

The scriptures of Hinduism are called Vedic Literature and are categorized on the basis of themes and functions. According to the Hindu concept, the existing world with its laws have been created by God, and as such it possesses a part of the qualities of its creator. As the creator is perfect, so does the surrounding world, nature exist as a perfect whole. The observation of nature, the discovery of its laws and functions are steps on the way to knowledge of God. Thus a vast part of the Vedic literature pays its attention mainly on this subject matter.

According to Hindu scriptures, man has to know nature at each level of its manifestation in order to live in the greatest harmony with it. Regarding the discovery of either macrocosm or microcosm, man should always consider his surrounding to be the universal body of God, and the knowledge of this universal body will lead him towards perfection.
4.) Processes of observation

The ten processes of observing reality described in the Vedas (pramanas) and the methods of modern scientific observation. Certain parts of the Hindu scriptures pay a special attention to the different processes of observation. These are collectively called pramanas. It is important to note that the scriptures emphasizing the path of divine observation are arsa (the statements of an authoritative sage, saintly person), upamana (comparison or one can identify something about which we have no prior knowledge of after it has been compared to a familiar object), artha-patti (presumption or one makes an assumption based on a fact that is otherwise inexplicable), abhava (perception of the object’s absence), sambhava (inclusion, what is based on common experience that a larger quantity includes a smaller quantity), aitikya (tradition applied when some accepted fact is known by common belief or tradition but the original source of that knowledge is unknown) and cesta (gesture, to learn something from a knowledgeable person’s gestures or from symbols) as well as perception of the senses (pratyaksa), deduction (anumana) and obtaining knowledge through hearing from a trustworthy person, who is an authority on the matter in question (sabda).

The Vedic methods of observation in accordance with the particular scientific goal harmonize with the methods of modern scientific observation and their use. Of course, beyond these similar processes for observing reality of Hindu religious texts and modern science, the Vedic scriptures give some other methods to know the transcendental realm of God, which is not the prior function of modern science.
5.) The Vedic and modern scientific approaches of the theory of creation.

Discussing the essential points of the Vedic theory of creation and the creation of the elements of material nature. Sarga — the disintegration of the original balance of material nature and the genesis of universes. Visarga — creation within the universe. The basic principles of the Vedic calculation of time. The great periods of existence (Satya-yuga, Treta-yuga, Dvapara-yuga and Kali-yuga) and the notion of cyclic time. The “Big-bang” and the Hindu theory of creation. The structure of the universe, the orbit of the planets, their circulation time and the distance between them according to Vedic descriptions (Surya-siddhanta) and modern science. Amazing parallels and some important differences between the two approaches.


6.) Creation and biological evolution.

The theory of the genesis of the living entities in Hinduism and in the modern scientific theory of evolution. Vertical and horizontal evolution of the living entities in Hinduism. The evolution of the soul and the doctrine of reincarnation (vertical evolution), the densification theory of human evolution (horizontal evolution). The evolution of material bodies according to the scriptures of Hinduism (Bhagavata Purana). Possible parallels between modern scientific and the Hindu religious conceptions. Life on other planets?


7.) The Vedic theory of the atom and its theological and modern scientific significance.

Detailed description of the genesis of atoms and elements on the basis of the Hindu conception. Subtle metaphysical elements (mind, intelligence and ego) and gross metaphysical elements (earth, water, fire, air and ether) as the constructing elements of the existing world and their molecular organisation in the Vedas and in modern science. Relationship between the param-anu of Vedic science and the atom of modern science including its minute parts (hadrons — protons, neutrons and hyperons, and leptons — electrons, myons and neutrinos). Common motives in the Vedic and in the modern scientific conceptions. Optical and colloid chemical laws. The example of perceiving colloid-size molecule complexes in light (Tyndall effect and Raleigh scattering) in Hindu scriptures. The calculation of time on the basis of the atom. Absolute and relative time.


8.) The subtle world and its constructing elements in the Vedic scriptures. The relationship between mind, intelligence and soul in Hinduism and modern science.

The subtle world and its constructing elements (mind, intelligence and ego) in the Vedic scriptures. The relationship between mind, intelligence, consciousness and soul. The changes of the human psyche
according to the Vedic theory of the modes of nature. The “real” ego and the “false” ego. The effects of the modes of “goodness” (sattva), “passion” (rajah) and “ignorance” (tamah) on human behaviour, on the evaluation of one’s surroundings and on one’s concept of reality. Categories of psychological ontogenesis in Vedic literature and in modern psychology. Platforms of consciousness described in Hindu scriptures, namely the platform of physical existence (annamaya), the platform of action (pranamaya), the platform of improved thinking (jnana-maya), the platform of understanding the existence of the transcendence (vijnana-maya), and the platform of the pure perception of reality (ananda-maya).


9.) The philosophical schools of global observation based on Hindu scriptures (astika) I. Natural scientific methods of understanding material reality in Hinduism.

The teachings of the Nyaya, Vaisesika and Sankhya schools and their connections with natural science. The system of Nyaya and the rules of philosophical argumentation, the limits of perception and deduction. The importance of authentic knowledge and critical studying. Natural scientific concept and the approach of the Nyaya philosophy. Vaisesika philosophy and the observation of the perceptible and imperceptible world. The atom as an eternal principle, the smallest element of the existing world. On the border between theism and materialism? Parallels between Vaisesika philosophy and modern natural scientific concept. Sankhya – The simultaneous acceptance of the analytical study of material nature and an existing transcendence in Hinduism. The two theories of the development of material nature and its regular processes: 1) satkarya-vada and 2) asatkarya-vada. Satkarya-vada and sankhya-philosophy. Is the material world reality or just an illusion? Pros and cons.
10.) The philosophical schools of global observation based on Hindu scriptures (astika) II. Theological methods of understanding the transcendentental reality of Hinduism.

The teachings of the Yoga, Mimamsa and the Vedanta schools and their connections with natural science. A higher observation of the “I” and the surroundings. Paraphenomena and their Vedic understanding — the subtle reality. A study of the laws of material nature. The description of the functioning of material nature and divine arrangement behind it — the Hindu theological approach of the problem. These philosophical schools in their teachings refer to the fact that the observation of the world only on the material basis is a just a part of the truth. By their attitudes they encourage one to learn to see the divine arrangement behind the different phenomena within this material nature. For the attainment of the goal yoga offers a mechanical practical-meditative method, mimamsa offers a fundamental approach, and vedanta offers the final conclusion.


11.) Religion and natural science. The limit of human observation and the resolution of contradictions.

Divine control or laws of nature? The viewpoints are approaching. Motto: “Only the ignorant speak of devotional service of God as being different from the analytical study of the material world. Those who are actually learned say that he who applies himself well to one of those paths achieves the results of both.” (Bhagavad-Gita 5.4)

To understand the whole of existence in a complex way, one needs to have a broadly open-minded vision and attitude including the approaches of both science and religion, which are different by their natures but are also complementary to each other to the greatest extent.


12) Summary

A review of the main points of the course, and discussion of ethical questions.


II.f Interactive elaboration of subject matters

The last thirty minutes of the lectures is spent with the elaborate analysis of a scriptural excerpt read by the students before the lecture enabling themselves to understand the theme of the lecture properly. This makes it essentially easier for the students to acquire the subject matter and the concept.

II.g Evaluation

Students may choose whether they give an oral presentation of the acquired materials or write a test or an essay on them at the end of the course. In both cases they are given evaluation marks.

The evaluation mark will be necessary for getting MA degree in the major of Religious Studies.

II. Reading list
The main list is selected in such a way that the books can easily be found in Hungarian language (1-26). Strongly recommended books for discussions: 1, 9a, 12, 14, 22, 25a, 26.

There are some offered readings in English, from which important pages will be given to the students in photo copies and/or some of them translated into Hungarian. (These important materials are available in the personal library of the course’s director, and to make xerox copies is possible at the office of the department.)


c.) Yoga — Európa Publisher (Hungarian translation), Budapest, 1994


Glasenapp, H.: The Five World Religions. — Gondolat Publisher (Hungarian translation), Budapest, 1977.


b.) The Ancient Wisdom of India. — Orient Press, Budapest 1994

Heszler, P.: Religion and Natural Science. — Manuscript of the author for his prize-winning course supported by CTNS funded by the John Templeton Foundation at József Attila University (in Hungarian).


Kuhn, Thomas: The Structure of the Scientific Revolutions, — (Hungarian translation), Budapest, 1984.


Storch, Volker: Evolution: The results and problems in the Science of Genealogy — (Hungarian translation), Budapest, 1995


Végh, László: Religion and Natural Sciences, lecture notes in Hungarian language.


Readings in English
Books and articles that made the basis of setting up this course. Some important pages will be given to the students from these literatures in photocopies and some of them are translated into Hungarian. The references in italics are the most important ones.


Ethics in an Age of Technology (Gifford Lectures II.) Harper and Row, 1992.


Carpenter, J.E.: Theism in Medieval India. Constable and Co., Calcutta, 1926.


b.) Indian Philosophy. Vol. I-II. Oxford University Press, Delhi, 1997


Vidyabhusana, Baladeva: Govinda-bhasya (Commentary on Brahma- sutra of Krsna-dvaipayana Vyasa), Allahabad, 1934.


Vivekananda, S.: Raja Yoga. Rascher Verlag, Zürich 1941.

