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A Personal Note at the Beginning

As an enthusiastic practitioner of Hindu-Christian dialogue in India in the sixties, I noted how frequently my Hindu dialogue partners resorted to modern science to make their points. They either drew parallels between ideas held by classical Indian authors and modern scientific findings, or they claimed "Vedic" origins for contemporary scientific or technical developments. More often than not they would perceive complete harmony between Vedānta and twentieth-century Western science, detailing how contemporary physics was supporting Advaita Vedānta or how Darwin's theory of evolution had been anticipated by Sāmkhya. Having had a lifelong interest in the sciences I found this turn of dialogue attractive. While in India, I was also introduced to Carl Friedrich von Weizsäcker, the well-known physicist-philosopher, who, while visiting development projects on behalf of the German Government, was eager to learn more about India's religions and cultures. We quickly became good friends and he invited me several times to spend part of my summer at his Max-Planck Institute in Starnberg where we were able to engage in lengthy fruitful conversations. Von Weizsäcker had made the acquaintance of Gopi Krishna, a representative of Kashmir Śaivism, and they had published together an intriguing little volume *Biological Foundations of Religious Experience*.[1]

Contacts like these prompted me soon after my joining the Department of Religion at the University of Manitoba to develop a course in science and religion. I wrote to the then Dean of Science, Robin Connor, and received an immediate and enthusiastic response. More than half a dozen colleagues from the Science Faculty responded to an invitation to meet and develop an undergraduate course in science and religion. As far as science was concerned, I thought it important that professional scientists taught that aspect of the course. As to religion, I wanted to broaden the scope beyond the biblical framework used in virtually all science-and-religion texts available then. The mass of information that was pooled in our undergraduate course from Astronomy, Biology, Ecology, Chemistry, Physics, Mathematics – not to speak of Hinduism, Buddhism, Judaism, Christianity, Islam, and the Chinese traditions – was overwhelming. Some students showed an interest in a more in-depth coverage of certain issues. This led to the development of a graduate course largely restricted to a dialogue between physics and religions. Physicists were (and still are) in the forefront of the development of a new metaphysics and they are usually more open to ideas coming from philosophy and religion than other scientists. In our graduate course, entitled "The Nature of Nature", we studied the major developments of physical science, the teachings of major traditions concerning "nature", and explored key notions such as time, space, symmetry, energy, light, from a variety of scientific and philosophico-religious perspectives. Some of our students did splendid original work and went on to write their M.A. and

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Ph.D. theses in this area. It was also gratifying to see the seminar receive a Templeton Award in the 1995 competition for science and religion courses.

The John M. Templeton Foundation has become a major agency in fostering the science-religion dialogue world-wide. It has sponsored the equivalent of a Nobel Prize in Religion through its Templeton Award for Progress in Religion, one of whose most recent winners was physicist Paul Davies. It has also created a network of centres and supports numerous workshops in North America and Europe. It publishes a Newsletter, *Humility Theology,* and sponsors science-and-religion literature. Sir John M. Templeton has himself (co-) authored several volumes on issues connected with science and religion. Dr T. Trenn from Victoria University, Toronto, has recently begun to create a Canadian network for the Templeton Foundation. At a recent conference in Toronto (10-13 April 1997) five "areas" were established within Canada, which are to execute specific science-and-religion related projects. The meeting was held in conjunction with the "Ecumenical Roundtable" which devoted this year's session to the topic science and religion. From reports delivered, it emerged that a great deal of attention is being given to the issue by the Churches in North America. Numerous lectures and presentations are being given, publications and films are produced. There is a genuine desire in these circles to establish contacts with scientists working in areas deemed important to Church teaching and life. Examples were provided of fruitful dialogues between e.g. geneticists and theologians, environmental scientists and Church groups. There is in the mainline Churches little, if anything, left of the old "warfare" mentality. The improvement of the relation between science and religion is in no small measure due to the fact that numerous academic and industrial scientists participate in Church activities and hereby contribute both expertise and understanding to the dialogue. This also ensures that the science-religion dialogue does not remain academic (in the negative sense of the word) but stays focused on practical concerns that touch the lives of many people: issues of health and environmental balance, technology and quality of life, physician-assisted suicide, etc.

It is worth noting that in 1995 the large and influential American Association for the Advancement of Science (AAAS) launched a five-year program "Science and Religion Dialogue" with a grant from the Templeton Foundation. The foci of its program are: Evolution ("investigating the role of co-operation and altruism in evolution"), Bioresponsibility ("studying the interrelation between population, consumption, and sustainability") and Human Nature ("gene patenting dialogue group").

Another major initiative linking science and religion with which I became associated is the "Scientific and Medical Network" which now comprises several hundred professionals and scholars in the sciences, medicine, philosophy, and religion. It has its headquarters in the United Kingdom but claims a large and growing international membership. It publishes a newsletter, *Network*, with short but substantial articles and reports, and each year conducts several symposia in different parts of Europe focused on a major issue of interest to its diverse membership.

The Institute for Religion in an Age of Science (IRAS) was founded in 1954 and is this year holding its 44th summer conference on science and religion on Star Island. Out of IRAS grew the quarterly *Zygon* (Journal of Religion and Science) founded in 1966 by Ralph Wendell Burhoe from the Meadville/Lombard Theological School and now edited by Phil Hefner and Karl E. Peters.

There are two Centres associated with Divinity Schools that promote the science and religion dialogue: the Chicago Center for Religion and Science, directed by Phil Hefner of the Chicago Divinity School, and

the Center for Theology and the Natural Sciences, under the direction of Robert John Russell of the Graduate Theological Union at Berkeley, one of the contributors to this issue.

In Canada, the Centre for Studies in Religion and Society at the University of Victoria has fostered the science-religion dialogue in its 1997 Distinguished Speakers Series "Religion and Science: Six Questions". The questions and speakers were: "What is Our Relation to Time and the Universe?" (William Unruh, University of British Columbia); "Where is God in the Universe of the Modern Cosmologists?" (George V. Coyne, Vatican Observatory); "Can Humans Own Life Forms?" (Barry Glickman, University of Victoria); "The Ends of 'Man' and the Future of God: Can Science and Religion be Friends?" (Janet Soskice, University of Cambridge); "Can We Think of Science as Ecumenical? The Investigation of Nature in Pre-Modern Asian Traditions" (Gregory Blue, University of Victoria); and "Need Science and Religion Exclude One Another? Science and Religion in the Modern West from Galileo to the Present" (Annibale Fantoli, Musashino University, Tokyo). The Centre has also undertaken international interdisciplinary research projects in environmental and health care ethics, involving leading scientists together with theologians (from all major religions), philosophers, sociologists, psychologists, and anthropologists in its research teams.

In all these efforts it is still mainly, if not exclusively, a dialogue between Christianity and modern Western science, and not yet a dialogue between religions and science in a comprehensive sense. By broadening the science-religion dialogue to include Asian religions and Asian scientific traditions, a whole new dimension will be added that will prove fruitful to the study of religion as well as the sciences. It was heartening to see at the recent conferences I attended that many participants were eager to learn about efforts in that direction, asking for literature and information.

Historical Antecedents to the Science-(Christian) Religion Dialogue

For several centuries the Western intellectual scene had been dominated by what was called "Warfare between Science and Religion".[2] The historic starting point of that warfare is usually identified with the trial of Galileo Galilei by the (Roman) Church. His condemnation was seen as the condemnation of modern science. The rejection of Darwin's theory of the evolution of species by (Anglican) Church authorities in the nineteenth century reinforced the impression that religion was identical with traditional blind belief, whereas science stood for progressive rational investigation. Fraser Watts[3] in a recent article in *Zygon*[4] wondered why these issues – viz. the heliocentric view and the theory of a non-human descent of humankind, which do not touch anything central contained in the Creed of the Church – created such upheaval. The answer may be that it became part of a larger confrontation that was shaping up between Western societies and the Western Church. The conflict probably was less about science and/or religion than about power, influence, and real estate. As the history of the last four centuries tells us, the science issues were only one more argument in a long-standing feud over key positions in government, education, and culture in general. Most of those engaged in this "warfare" were neither interested in, or knowledgeable about science and/or theology. The "rehabilitation" of Galileo by Pope John Paul II and the declaration that the theory of evolution could be reconciled with biblical teachings about human origins hardly made any impression at all on either the scientific or the religious communities.

The sciences as well as the religions have gone through a long series of developments and transmutations till they reached their present shapes – and in all likelihood they will continue to change. The historic positions taken by either science or

theology that led to the "warfare" are no longer defended: neither scientists nor theologians subscribe to the positions taken by their sixteenth- or nineteenth-century proponents. It should also be kept in mind that neither Eastern Christianity nor any of the non-Western religions participated in that conflict. It was medieval Islam that actively promoted the study of all the sciences it inherited from Greek, Persian, and Indian sources. There never was a serious conflict between science and religion in the old and vast cultures of India and China. While the European Enlightenment did have a decidedly anti-Church thrust, including a rejection of much traditional Christian theology, throughout these last four centuries there have been (as in all the centuries before) representatives of both science and religion who respected each other and who attempted to integrate each others' insights.

Scientists like Jacques Monod and Richard Dawkins, who claim that science has once and forever ousted religion and proven all of theology wrong, are not representative of contemporary scientific thinking as such, nor are fundamentalist Christians representative of today's religious thought. The great problem today does not seem to be the conflict between science and religion, but the apathy of the large public towards both science and religion, and the widespread ignorance and disinterest of scientists and religionists alike concerning each other's work. It has also been suggested that today it is not so much the natural scientists, but the social scientists and the secular humanists who engage in increasingly obsolete warfare against religion. While the avant-garde of physicists is seeking and finding dialogue partners among religionists, the anti-religion stance of many social scientists and post-modern humanists is becoming more and more pronounced. They also often denounce science, holding it responsible for all the ills that plague modern societies.

Regardless of the etymology of the words "science" (from *scientia/scire*) and "religion" (from *religio/religare*) there is no currently universally accepted definition of either nor any consensus of what is, and what is not, science and/or religion.[5] There are "establishments" in both fields, with traditions, political influence, financial power. And there are academic institutions devoted to both. While historically, in the West, "religion" was monopolized by the Church (and after its break-up, by the "Churches", who had – and have – agencies to control the teaching of theology), science, after having evolved as a branch of philosophy, soon developed into a host of fairly independent experiment-oriented disciplines, largely in opposition to school-philosophy, and without any apparent desire for any connection with it.[6] When a philosophical foundation was felt to be required during the late eighteenth and early nineteenth centuries, it was supposedly found in theories such as sensualism, empiricism, and materialism. The majority of late nineteenth-century scientists were materialists, and philosophical materialism used science and scientific evidence as its basis. Religion and science seemed incompatible to both theologians and scientists. There were a few exceptions, and then there were new discoveries that demanded a new theoretical foundation that required a revision of the philosophical picture. The notion of "religion" today has expanded beyond Biblical revelation and Christian dogma to include Buddhism, Hinduism, Daoism, and other Eastern approaches to reality that often were found amazingly close to the thinking of leading scientists, especially in theoretical physics and cosmology.

Far from being obliged to adopt a materialistic philosophy, many scientists today express an active interest in religion and attempt to build intellectual bridges between their fields and their religion. While in the first half of the twentieth century physics, especially basic theoretical physics, made the greatest strides and impressed

popular imagination most with its concepts (and extrapolations as they appeared in science-fiction), in the last few decades it has been the life sciences, especially genetics and neuro-science(s), that have caught the popular imagination. The life sciences in general had proceeded far longer than the others in a purely empirical, classificatory manner. They have changed dramatically and are now also entering areas that are philosophically/religiously sensitive, such as consciousness, immortality, ethics.

Without attributing signal value to it, it is interesting to note that a widely respected science periodical like the *Scientific American* now regularly features articles that deal with issues involving philosophy and religion. Thus the November 1995 issue carried an article by the well-known geneticist Richard Dawkins, "God's Utility Function", and the December 1996 issue had a long contribution by the neuro-scientist David Chalmers, "The Puzzle of Conscious Experience".

The Hindu-Science Dialogue

The science-religion dialogue, which had to overcome such formidable obstacles in the West, due to the historic position of the Christian Church(es), seems to come naturally to Hinduism. To begin with, the brahmins of old were the custodians not only of "religious" but also of "secular" learning: the study of the Veda and the performance of the *yajñas* required also a study of astronomy/astrology, of linguistics/ lexicology, of geometry/architecture, and brahmins, as teachers of princes, also taught the practical arts of statecraft and diplomacy, and other skills required. The content of the tradition, as far as its intellectual/philosophical side was concerned, was kept open: side by side a great variety of opinions were entertained by upaniṣadic teachers and the variety of teachings (*vidyās*) stimulated discussion and further research. The notion of the immanence of *brahman* in the world of nature fostered an enquiry into structures of nature that were soteriologically relevant. It came naturally to Hindus to accept scientific findings and to give them a metaphysical interpretation. Science and religion were never enemies in India and the brahmins were the first to acquire a knowledge of Western sciences after they had come into contact with the modern West. Even traditional works of Hindu religion, the Epics, the Purāṇas, and the Tantras, intertwine spiritual wisdom and knowledge about the natural world in a meaningful way. The cosmologies of the Purāṇas, for instance, may not be in agreement with modern Western science, but the very fact that the authors of these "Bibles" found it important to provide a great deal of detail about the origin and development of the universe shows their conviction that such knowledge was religiously relevant. Not by chance was Sāmkhya, a system of traditional science, accepted as one of the *saddarsanas*, and while Vedāntins may disagree with some of its theological implications e.g. regarding the origin and nature of *prakṛti*, they took over its basic assumptions and terminology.

Convinced that what the Upaniṣads had to say about the universality of *ātman,* that ensouled not only humans and animals but also plants, Jagdish Chandra Bose (1858-1937) set out to undertake his famous plant-physiology investigations that eventually earned him a Nobel Prize. Far from battling their religious traditions, Indian scientists very often are deeply interested in them, and are often quite expert also in specifics of Hindu theory and practice. It is not by accident that the renewed Western effort to consider science and religion as complementary rather than mutually exclusive, was engendered by scientists who had come to know and appreciate Indian religions. New branches of Hinduism, with a large Western membership, like TM (Transcendental Meditation) and ISKCON (International Society for Krishna Consciousness) are very active in their efforts to dialogue with science. They have among their members some highly qualified

scientists who endeavour to show the compatibility of their traditions with the most advanced science.[7] They also organize widely-publicized international conferences at which often Nobel-Prize winning and other well-known scientists participate.[8]

The Hindu-Christian Trialogue: The Contributions in this Issue

The Hindu-Christian-Science trialogue evokes the famous and intractable three-body-problem in physics. The task is far from easy and it is made more difficult by those who have an interest in preventing this trialogue from taking place. Overcoming prejudice – scholarly, religious and/or scientific – is part of the preparation for the trialogue. The variety of viewpoints offered in the following essays and the openness exhibited by scientists and religionists for each other augur well for the future of both interreligious and interdisciplinary dialogues. I consider it important that scientists join humanists in interpreting the sources of traditions, which initially did not separate religion from "secular" interests and pursuits. The sources of our traditions are much richer in content and much more sophisticated in their presentation than we believed. It is equally important that scientists find out in their dialogue with religionists that religion connects with reality and that it offers knowledge that is a necessary complement to the scientific.

The Hindu-Christian-Science trialogue, by using complementarity as its theoretical model, accepts a plurality of religions and sciences as given and understands their relationship in an ecology of the spirit. If complementarity guides the practice of interreligious dialogue it will resolve not only many paradoxes which have vexed its practitioners but also lead to practical results which will benefit the whole of humankind. It is not a matter to be ashamed of if one recognizes one's own tradition (as well as all others) as "incomplete" and in need of "complementation". It is an admission of the given finiteness of everything human to recognize our indigence not only vis-à-vis a higher principle but also vis-à-vis each other. It is not a sign of weakness or deficieny to seek dialogue with each other. In and through dialogue we exercise our specific human nature, we grow in understanding, and we hope to realize our final destiny.

Notes

1. C. F. von Weizsäcker and Gopi Krishna, *Biologische Basis religiöser Erfahrung*, Weilheim: O. W. Barth, 1971.
2. *The History of the Conflict between Religion and Science* by J.W. Draper (1875) was followed by the *History of the Warfare of Science with Theology in Christendom* by A. D. White (1896).
3. Fraser Watts is the first Starbridge Lecturer in Theology and Natural Science at the University of Cambridge. The establishment of this endowed chair was accompanied by strong protests from, amongst others, the Oxford Biologist Richard Dawkins (author of *The Selfish Gene)* who believes that religion has been definitively replaced by science.
4. "Are Science and Religion in Conflict?" *Zygon*, Vol. 32, No. 1 (March 1997), pp. 125-38.
5. The "scientific method" which was once considered the criterion to determine what was and what was not science, has long since been broken up into a variety of mutually incompatible methodologies and interpretations.
6. For the majority of people today science is the handmaiden of technology in the service of governments and big industry. A very large percentage of today's physicists, e.g., are employed by the military for the development of new weapons systems and the overwhelming majority of the rest of all scientists are employed by industry. "Pure science" and "fundamental research" have to struggle to find funds for advancing scientific knowledge that is not tied to practical technical applications.
7. TM began publishing a periodical *Modern Science and Vedic Science* in 1987. In the

first issue John Hagelin, a Harvard graduate in physics and a member of the faculty of Maharishi International University, published a book-sized article "Is Consciousness the Unified Field? A Field Theorist's Perspective" (pp. 28-87) which "consider[s] the proposal due to Maharishi Mahesh Yogi that the unified field of modern theoretical physics and the field of 'pure consciousness' are identical."

8. In 1986 and in 1997 the Bhaktivedanta Institute of Bombay organized a "World Congress for the Synthesis of Science and Religion". Part of the proceedings of the 1986 Congress appeared under the title *Synthesis of Science and Religion. Critical Essays and Dialogues*, edited by T. D. Singh and Ravi Gomatam, published by The Bhaktivedanta Institute, San Francisco-Bombay, 1988. Among the prominent Christian theologians present were Harvey Cox, Paulos Mar Gregorios, and Jürgen Moltmann, among the scientists were Nobel-Prize winners George Wald and Eugene Wigner.