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NEWS

Dialogue between Traditional and Modern Approaches: A Report*

Mādhyamik Buddhism (MB) and Modern Science (MS)

A series of interdisciplinary dialogue sessions on MB & MS were organized by *Saṃbhāṣā* – an East Asian Centre for Dialogue, Kolkata in collaboration with Nava Nalanda Mahāvihara (Nalanda) and Center for Philosophy (NIAS, Bangalore).

Three such dialogue sessions took place, one in the form of a three days Seminar on *Śūnyatā* (Dec. 2005) and other two in the form of workshop – first one on Space and Time (Oct. 2006) and second on Matter and Motion (Nov. 2007) in *Mādhyamik* Buddhism and Modern Science.

The aim of these discourses has been to revive the Buddhist Philosophy in the land of its origin, which was in oblivion for 800 years. This long time has witnessed a gradual declination of the philosophical legacy in India – both in theoretical standard as well as in social attitude to it. A deplorable gap exists between the modern interpretational developments in physics and the relevant components that can be reconstructed out of the traditional eastern philosophical debates.

Though it is widely believed that the gap between Indian theoretical tradition and modern science is not quite unbridgeable, however, this connection is not all new. The development of Indian theoretical traditions and development of modern physical science are temporary apart. The modern physical science started developing around 2000 year ago whereas *Mādhyamik* Buddhism was expounded by Nāgārjuṇa in 2nd A D. Therefore while organizing such a dialogue about East-West Synthesis or a fusion philosophy programme one should be careful about this contextual difference. However, through this dialogue sessions some areas of intersections have been discovered. One such area is concept of *Śūnyatā*. However, on account of the Islamic invasion around 1196 AD the Buddhist Philosophy in

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India was relegated from Indian academic scenario and an exiled philosophy had been cultured and developed mainly in East Asian countries.

To carry out these dialogues further ahead and to arrive at some intersection massive pre - theoretical coordination between experts of different fields are required. The archaeological sites scattered all over India could be a major source material. The idea is to form a philosophy of science group based in Nalanda and elsewhere of traditional importance. These philosophical ideas have to be implemented through actions. The activities of such a group would be :-

1) Preparation of a lexicon with terms having thematic affinity both from *Mādhyamik* Buddhism and Physical science.
2) A set of questionnaire to be distributed among concerned scholars interested in dialogue.
3) Preparation of a catalogue of the major works in Tibetan, Chinese, Japanese, still remained untranslated and a chronological record of the remarkable debates that took place in ancient Nalanda. For example, the debate between Chandrakriti and Chandragomi in sixth century.

Tibetan and Modern Astronomy

A meeting was held at the Central University of Tibetan Studies at Sarnath (Feb 2009) to initiate dialogue between traditional and modern approaches. The dialouge involved 60 Tibetan Buddhist scholars from around India and experts on physics and Indian astronomy. Though such dialogues are available on philosophical traditions but there is no evidence of dialogue in the astronomical context.

The background paper prepared and circulated for discussion by D. Gangopadhyay sought to identify some key conceptual differences about notion of force. The 17th century western notion of force which was the key aspect of the Newtonion mechanics is used today to understand the physical universe. In contrast astronomy in India as well as in Far East had no conceptual analogue comparable to Newtonian force. Despite developing an admirable level of mathematical sophistication concept of force does not seem to have played a significant role in any of these astronomical variants.

Prof Hari Dass explained at an elementary level how the notion of force was eventually abandoned in the general theory of relativity and Prof. Raju explained why that happened. At the level of practical calculation of the planetary positions, Nīlkaṇṭha's methods, using the Indian calculus, and elliptic planetary trajectories were very similar to those of Newton. However while Newton, like other Europeans took the concept of straight line motion as natural where others had assumed circular motion as natural. The Newton's concept of straight line (Newton's first law) was not based on observations but purely on theological belief. On the same theological belief about the perfection of mathematics, Newton made time metaphysical to justify the use of imported Indian calculus in formulation of his second law which defined force. Newton's metaphysical notion of time had to be abandoned in special relativity. Accepting the motion along a curved line as natural , the resulting functional differential equations correspond to a notion of time and "cause" different from Newton's mechanical universe, but very similar to the Buddhist notion of *paticca samuppada*. Dr. Ram Subramanian explained how calculations were done in traditional Indian astronomy.

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Professor Tom Whiteside : Historian of Newtonian's Mathematics

This report on Professor Tom Whiteside, a historian of mathematics who devoted his life to editing the voluminous Isaac Newton archive of manuscripts is based on a news published in *The Times* (May 7, 2008).

Professor Derek Thomas Whiteside was best known for his scholarly editing of the massive eight-volume work "*The Mathematical Papers of Isaac Newton*".

Born in 1932,Whiteside was educated at Blackpool Grammer School and graduated from Bristol University in1954 with a first in French and Latin.

Whiteside was appointed university readership in History of Mathematics 1976-87 in the Department of the history and philosophy of science and then a university professorship in the history of mathematics and the exact sciences in the department of pure mathematics and mathematical statistics from 1987 to his retirement in 1999 and an honorary doctorate from the university of Lancaster in 1987. He was elected a Fellow of the British Academy in 1975 and was at that time the youngest FBA.

A festschrift titled *"The investigation of difficult things"* a quote from Newton's optics was published in 1992. Whiteside was recognized as the foremost historians of mathematics of his generation and the leading authority on Newton.

Whiteside was interested in study of primary texts of mathematics of 17th century. He spent 1956-59 as research student at Cambridge under Professor Richard Braithwaite and Michael Hoskin and was awarded Ph.D. for his thesis on "Patterns of Mathematical thought in later 17th century". Written in 29 days the thesis was published in the inaugural issue of the journal *Archive for the history of exact sciences in 1961.* During his thesis work he encountered Portsmouth collection, the archive of Newton's mathematical papers. The collection has passed via Newton's neice to Earls of Portsmouth and the fifth Earl donated them to University of Cambridge in 19th century. Despite best efforts of some scholars these archives could not be organized and they were in state of confusion.

Whiteside threw himself in the study on Newton papers, which was to become his life's work.He was awarded Leverhulme Fellowships to study these papers in 1959-61. In 1960 Whiteside contacted Cambridge University Press and offered to edit Newton's mathematical papers principally the Portsmouth collection.. The offer was accepted and it became Whiteside's overriding focus for more than 20 years. To complete it, he needed to carry the whole corpus in his head. He became famous for his ability to date a Newton manuscript from the handwriting alone.

The book on which Newton's fame rests, *the Principia* of 1687 was written in Latin. The content of the work was mathematics and very few Latin scholars had the extent of mathematical knowledge to master the substance of the papers.The Newton's mathematical papers were lying in Cambridge for 75 years without being edited and published. Whiteside started working on these papers and the first of the volume appeared in 1967 and the eighth and last in 1981. Each volume is of the order of 600 pages, consisting of a printed version of Newton's handwritten manuscripts, commentary and introductory texts plus extensive footnotes. No library is complete without these volumes and they are simply referred as "Whiteside's papers" recognizing his contributions.

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