

EDITORIAL

GOOD FENCES MAKE GOOD NEIGHBOURS*

There has been quite a debate during the last several weeks about science in ancient India. On one hand, unverifiable claims are being made that many of modern day ideas, discoveries and inventions in science (e. g., stem cell biology) were already known and practised centuries and even millennia ago. On the other, outright dismissal of even claims where written material can be checked (*Baudhāyana* and *Āpastamba Sūtras* in mathematics) has the danger of throwing the baby with the bathwater. The debate has worryingly turned partisan and political, and it is time that we take a perspective view of the issue.

Every civilization has been enriched over time through imagination, individual and collective thought and creativity. These have led to the blossoming of art and culture, mythology and symbolism, epics and belief systems, which have given it identity. They have also led to developments and achievements in logic, analytical thought, science and technology, which have offered human society improvement in daily life. *Cogito ergo sum.*

Imagination leading to arts and crafts, literature or mythology is often not limited to what is possible, feasible, familiar or 'natural'. Myths and epics abound in such unfettered thoughts and acts, and it is these that lend them their special character and appeal. Great poems and epics of the Indian, Greek or other ancient civilizations have captured, triggered and nurtured peoples' imagination precisely because of this feature. The *Mahābhārata*, told and retold over centuries, captivates the contemporary mind and even allows

for interpretation of today's events. Such poems and epics have their own grammar.

Imagination, governed by rational and logical rules, and empiricism or heuristics, leads to developments in science and technology, making daily lives better. Science and technology have their own grammar, rules and restrictions. They do not allow, for example, creation of any material thing out of nothing. They thus define the 'natural', and the 'possible'. Town planners, mathematicians, metallurgists and architects of ancient India understood and practised this grammar as well.

Confusion and conflict arise when, for example, the symbolism of a myth or an event in an epic, which is perfectly admissible in its own context and narrative, is attempted to be in line with, and 'explained' using the grammar of science; or when what is symbolic is interpreted to be literally true. Such an attempt to 'explain' Lord Gaṇeśa's head through the method of science demeans His Divinity, reducing Him to a mere mortal.

Myths and symbols are meant not always to be explained by science; to do so would be an unacceptable trivialization. On the other hand, they may actually inspire science towards inventions and innovations. Each has its own value, and should be respected in its own right. There need be no "Correspondence Principle" between the two. As Drs. Vikram Soni and Romila Thapar have remarked (*The Hindu*, Nov 7, 2014),

'Imagination has been a creative force and continues to be. Such imagination, on occasion, turns out to be prophetic... (it) sometimes makes a link with reality as projected for the future, whereas in India today the claim is that it connects to a reality from our past.... (Myths) are old legends, history is what is thought to have

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happened, of which science is a part. To replace the latter with the former is incorrect and some would say, rather fanciful’.

Without symbolism and myths, it would be a duller world. Without science and technology, it would be a poorer world. Let us be enriched by both. But, let them not intrude on one another. As they say, good fences make good neighbours.

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***IJHS*: 50TH ANNIVERSARY**

The history of science and technology, as an area for compilation of sources, study and research, was initiated by a History of Science Board (1960) and taken over subsequently by a National Commission on History of Science in India with President INSA as its Chairman in 1965. The Commission felt that it would be worthwhile and nationally important to know how science has grown conceptually in India through the centuries, and to what extent their development are related to social conditions which surrounds their growth. To record studies, systematic research, encouragement of scholars, it recommended the publication of a serial journal in this area entitled, *Indian Journal of History of Science (IJHS)* as its main forum, first as biannual in 1966, which was of course switched over to quarterly from 1984 onwards. The Commission further suggested that thematic issues may be planned and published from time to time to have a clearer perspective of the development in different areas of science. It is matter of great happiness and pride that *IJHS* is now in its 50th Anniversary year (Golden Jubilee Year), and being published uninterruptedly without any break. As per schedule, this Anniversary volume of 2015 will have four numbers as usual, first three being normal issues containing articles from eminent scholars in the field, and the fourth one will devote on the 50 years’ cumulative index (chronological list with subject and author index).

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The *IJHS*, a peer-reviewed journal, has achieved considerable success. It started with 7 to 8 research articles annually at its initial stages, slowly adding proceedings of the national seminars, supplements containing important source materials with English translations, historical notes, book reviews, project reviews, communications, obituaries of established scholars with complete list of publications. Thematic issues have also been planned from time to time. The number of entries has now increased to 40 annually on an average. More than 2000 entries have now been published so far.

Some of the issues dealing with ancient & medieval phases made considerable reputation. These are: History of Science and Technology in India, History of Astronomy in India; History of Technology in India (2 Vols on ancient & medieval periods); Cannons, Gun Powder, Artillery, Military Modernization and Technology (2 Vols); History and Characteristics of Wootz Steel in India (2 Vols); History of Sanskrit Numerical Tables etc. Scientific and Technical Education in India: 1781-1900 and so on. Beside these, there were a large number of Sanskrit manuscripts in mathematics, astronomy, medicine, alchemy published with Eng. translation and notes in the Supplement section of *IJHS*.

Likewise, a large number of thematic numbers have given coverage of the modern phase beside normal issues. A few of them are : Character of 19-20th century Science in India; A Bibliography of Physics, Astronomy, Astrophysics and Geo physics in India: 1800-1950; History of Magnetic Studies in India: 1850-1980; History of Technology in India (modern period); Mathematics and Mathematical Researches in India during Fifth to Twentieth Centuries – Profiles and Prospects; History of Chemistry and Chemical Researches in 20th century India; and so on.

The running of *IJHS* has been made possible through the active interests of past presidents of INSA, guidance of the commission & editors and editorial board, active co-operation of interested national and international

contributors and readers. *IJHS* has now slowly acquired international standing and great reputation, and many foreign and national experts have been actively supporting this venture with their contributions to it on a regular basis. The Editorial Board is also being slowly expanded with foreign experts.

D.M. Bose, the first editor of *IJHS* (an expert on cosmic ray research, Director of the Bose Institute, Calcutta, and the teacher of great scientists, S.N. Bose and M.N. Saha) tried to formalize its activities to a great extent. He emphasized (*IJHS*, 1.1, 1966, Preface):

‘While special importance was being given to the writings of history of sciences in India, it was also recognized that history of science should be the subject of continuous study which the Indian universities should be invited to take up later.....By such means a cadre of science historians would be trained from which the universities may be able to recruit staffs for the history of science departments’.

Bose stressed further that these science-historians are to be trained in historical processes and technicalities of science, and later in the general nature and growth of science and their impact on the society. The trained scholars have their natural advantages and disadvantages, but what we want through these trainings is a bunch of dedicated well-versed speakers/scholars who could talk and write about science with confidence and assess India’s contribution to world science.

Presently, the facts of scientific advance and technological innovations are widely recognized, but there has been relatively little systematic attempt to understand why and how such advances occur. People will learn to live even with biological revolution, just it is learning to live with computers and nuclear weapons. Familiarity with the facts of scientific advances has become a prerequisite of existence in our

contemporary life. The apparent inevitable reach forward of technology ensures a continuous high rate of innovation, of new machines, products, methods at work, in the home and outside. New scientific triumphs are part of the regular diet of any of our newspaper readers. The modern science is being taught in almost hundreds of universities, research centers in India, but a few systematic publications and steps are taken to preserve India’s heritage and contribution to science and technology. A few universities and IIT’s in India have of course come forward and introduced some stray courses in history of science, with marginal and having almost no effect. The universities/ IIT’s are to devise centers in the field which could offer quality training, since the expertise in all fields of science, technology, history, philosophy and culture is available in one campus. Experts well known in different fields of history of science are even quickly vanishing from the field.

The Commission on history of science has been doing continuous effort to assess its manuscript sources, survey & studies in different areas of science in order to have a clear perspective of its scientific heritage by correcting the ambivalence towards change that characterizes some of our attitudes towards science, scientists and their activities. The Indian National Science Academy on its part has been doing a unique service in the field for the last 50 years, not only by authentic publication and disseminating knowledge in the field, but also by playing the role of a catalyst by augmenting the activities of the program by all round support, recognizing the merit with awards & fellowships. What is needed a free atmosphere to reap and develop a firm ground to flourish in contrast to the legend that was originally inscribed on the entrance to Plato’s Academy (‘Let no one ignorant of geometry enter here’) with a new dictum, ‘Let all having interest in science and history of science are welcome here’.

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