

History of Development of Science and Technology in Ancient India

(From Ancient Period to 1000 AD)

Project Coordinator

Dr. Ravi Prakash Arya

Concept Note

India is credited with highly advance knowledge system since ancient times. Vedas and post Vedic literature composed in Sanskrit has been the storehouse of various branches of knowledge on science and spirituality. Some of the prominent contribution being in the field of philosophy, physics, astrophysics, astronomy, astrology, cosmology/cosmogony, creation, space, tempering technology, thermodynamics, power/electricity, speed management in machines, sound management in machines, science of Rays, energy generation, bio Sciences, microbiology, biotechnology, mathematical sciences, architecture and vastu, earth sciences, geology and geography, ayurveda, yoga, pharmacy, toxicology, food technology, health sciences, agnihotra and animal ayurveda, plant ayurveda, agriculture, horticulture, sericulture, animal husbandry, water, dhanurveda, marshal arts, military science and airspying, meteorology, environment and ecology, chemistry, colour science, science of smoke/vapour, engineering (instrumentation, textile, mechanical, electrical, communications, aeronautics), metallurgy, glass technology and seismology. This knowledge was documented from time to time and carried forward for future generations until the mass scale loss of Sanskrit manuscripts to plunder and loot and devastation of libraries of Nalanda, Takshshila, Vikramshila and Ujjain. Still number of Sanskrit manuscripts on various subjects are found preserved in various museums and libraries of India and abroad. Nearly, 1.5 million manuscripts are held in the libraries and museums of America and Europe.

In the present project, it is proposed that the extant Sanskrit literature, available in published or manuscript form may be studied and information be compiled related to the field of science and technology, ranging from ancient period to 1000 AD.

This humble effort will help to initiate a process to unlock the past scientific knowledge system currently atrophied due to centuries of neglect and stagnation and to put it to use for practical application in the current scenario.

Objectives of the Project:

1. To gather information on science and technology by revisiting the past of country through ancient Sanskrit literature.
2. To develop a data base on indigenous science and technology for complementing or supplementing the knowledge at hand.
3. To learn about Vedic technological know how that have been metamorphisized with nature unlike current technologies that aim to exploit nature to achieve ends leading to ecological crisis.
4. To seek possibility of formalization of ancient knowledge on science and technology to encourage interdisciplinary research.

Sources

Primary Sources

1. The extant Vedic and post Vedic literature available in published and manuscript form in India and abroad
2. The later Vedic and medieval Sanskrit texts dealing with ancient science and technology or containing references of science and technology from ancient period to 1000 AD available in published form.
3. Sanskrit commentaries of original Sanskrit texts dealing with ancient science and technology or containing references of science and technology from ancient period to 1000 AD available in published form

Secondary Sources

Books or research papers already published on various aspects of Ancient Indian Science and Technology by various scholars in India or abroad.

Tertiary Sources

Information available on internet and websites.

Methodology

Study will comprise of a multidisciplinary approach involving a team of Sanskrit scholars and scientists from different disciplines. Sanskrit scholar will help in data collection on the particular subject and translation, whereas a scholar from a scientific stream will interpret it most in modern scientific terms.

Original Sanskrit texts dealing with various aspects of ancient science and technology or containing references of various aspects of science and technology available in published form or manuscript form in various libraries and museums of India or abroad will be collected.

Data obtained from primary, secondary and tertiary sources will be analysed and interpreted.

The various fields that will be explored are:

1. Accounts and views of foreigners and foreign travellers on development of science and technology in ancient India.
2. Physics, Thermodynamics, Power/Electricity, Science of Rays
3. Astrophysics, Astronomy, Cosmology/Cosmogony, Creation, Space
4. Tempering technology
5. Energy Generation.
6. Seismology
7. Bio Sciences, Microbiology, Biotechnology
8. Mathematical Sciences
9. Architecture and Vastu
10. Earth Sciences, Geology and Geography
11. Ayurveda, Siddha, Yoga, Pharmacy, Toxicology, Food Technology,

12. Vriksh Ayurveda, Agriculture, Plants, Water
13. Dhanurveda, Marshal Arts, Military Science and Airspying
14. Meteorology, Environment and Ecology
15. Chemistry, Colour Science, Science of Smoke/Vapour
16. Engineering (Instrumentation, Textile, Mechanical -Speed Management in Machines, Sound Management in Machines-, Electrical, Communications, Aeronautics)
17. Metallurgy, Glass Technology

Extant Research on the Theme Proposed

There is a dearth of a scholarly, systematic and comprehensive study on Science and Technology in Ancient India, except a few fragmentary references and studies. This has greatly disappointed scholars who want to carry out their research on scientific development and technological know how of ancient India. The echo of this disappointment is clearly heard in the words of James E. McClellan III and Harod Dorn, Science and Technology in World History: An Introduction, The Johns Hopkins University Press, 1999. He expresses his concern as follows:

" In recent decades the scholarly study of science and civilization in China has influenced historians concerned with the history of science and technology in India. But, alas, no comprehensive synthesis has yet appeared to match the studies of China" "Given its technological complexity, India actually underwent an astonishing process of deindustrialization with the coming of formal British rule in the nineteenth century"

Similar concern is expressed by another Dutch scholar Claude Alvares from Holland. He speaks, nonetheless, in the same words as those of James E. McClellan III and Harod Dorn.

" While there was certainly no dearth of historical material and scholarly books as far as Chinese science and technology were concerned—largely due to the work of Dr Joseph Needham, reflected in his multi-volumed Science and Civilisation in China—in contrast, scholarly work on Indian science and technology seemed to be almost non-existent. What was available seemed rudimentary, poor, unimaginative, wooden, more filled with philosophy and legend than fact."

The above two quotes make it amply clear that scientific aspect of ancient Indian history and culture has been subjected to utter neglect and stagnation. The present study will cater to the above needs and concerns of the scholars

How does this project aim to make a contribution to history?

The contribution of India towards the world of Science and Technology has long been unrecognised and unaddressed aspect of Indian history due to the misgivings that Indians had no science and technology. This project will help to remove this misgiving and fulfil the gap in history.

This project is going to investigate ancient records on science and technology that will to reconstruct social and cultural past of India, and hopefully to mould Indian state and society accordingly.

List of Scholars Consented to work on the Project

(Development of Science and Technology in Ancient India)

1. Prof. B.S Rajput, Former Vice –Chancellor Kumaon and Garhwal Universities, and former Chairman of UP Higher Education Commission. (Physics). Email: bsrajp@gmail.com, Ph.09811950077
2. Prof. S.L Singh (Math) (ex) Head Mathematics, Gurukul Kangri University, Haridwar (Mathematics). Email: vedicmri@gmail.com, Ph. 09412025236
3. Prof. C.P. Trivedi, Retd. Principal Govt. Colleges Madhyapradesh. (Botany, Biotechnology and Genetics). Email: atcptrivedi@gmail.com Ph. 09425456518
4. Prof. Shanker Gopal Nene, Retired Prof. of Sanskrit, Centre of Advanced Studies in Sanskrit, University of Pune. (Physics). Email: shankarnene@gmail.com , Ph. 9881407450
5. Surya Prakash Kapoor, (Physicist) (Seismology, Energy), email: spkapoor11@yahoo.com Ph. 09910702350
6. Dr. Deepak Bhattacharya, Orissa. (Ayurveda, Archaeology based evidence of Ancient Sciences) oddisilab1@dataone.in Ph . 08895997259
7. Dr. Bhag Chauhan, Associate Prof. of Physics, Central University Dharmashala, HP (Physics). Email: bcawake@gmail.com, Ph. 09418472694
8. Mr. Madhav K. Deshpande, Pune. Ph. (Vedic Aeronautics)
9. Mr. A.S. Nene, Nagpur Maharashtra. (Vedic Architecture and Sthapatya Veda) 09404082547.
10. Dr. PC Naik, Retd. Director Planetarium, Orissa. (Astronomy and Archeo-astronomy), email: Ph. 09437493253
11. Dr. V.K Didolkar. (Metallurgy), Prof. Metallurgy, Vishvasharya National Institute (Tech VNIT, Nagpur. Ph. 09923062875
12. Dr. Surinder Kaur. (Psychology). Scientist E, DIPR, DRDO, Delhi. Email: aryasurin@rediffmail.com, Ph. 09650183260
13. Mr Dilip Gotkhindikar, Nasik. (Vedic Mathematics), Ph. 09822061228
14. Dr. Narender Kumar (Sanskrit), ex Senior Sub- Editor, Hindustan Group, Delhi. Ph. 09958305628
15. Dr. Vidyarthi Nanduri (Electrical Engineering, Cosmology), Hyderabad. Email: vidyanand1941@yahoo.co.in, Ph. 04023811216

16. Harshdev Kumar, Mawana, Meerut.(Biotechnology). Email: harshdev25@gmail.com.
Ph. 07895423792
17. Michal A Cremo, USA, the famous author of Forgotten Archaeology, and Vedic Theory of Devolution: An Anti Thesis of Darwin's Theory of Evolution.