REAL-TIME IMAGING OF NEURAL ACTIVITY
Indian wisdom

Robert Temple


The history of Indian science has not been well documented and this fascinating book does much to remedy the situation. It deals largely with what happened before 500 B.C., and its contents will be highly unexpected to most readers. The book is primarily written for an Indian audience and the author bravely attacks "Hindu revivalism" and the obdurate doctrines of the religious fanatics of India, pointing out that even many modern Indian scientists are tainted by it. This has resulted in a widespread unwillingness among devout Hindus to acknowledge indebtedness to the Indus Valley civilization, which preceded the Aryan invasion of India and which collapsed about 1500 B.C. Chottapadhyaya takes this bull firmly by the horns, demonstrating conclusively that the mathematics and geometry preserved in the Hindu Sulvasutras can only be Harappan (Indus Valley civilization) in origin.

The book will be tough going for those with no background in Indian studies, as the references to the Vedas and countless other matters taken for granted by an Indian readership will be obscure or even incomprehensible. But this volume is nonetheless a masterly contribution to the history of science.

It is, for example, astonishing what the author reveals of the complexity of the brick technology of the Indus Valley civilization. One of the mathematical preoccupations of that civilization was to make widely varying constructions of bricks of great size — having identical sizes and volumes. The Indus people were thus concerned with attempting to square the circle, knew the Pythagorean theorem (as the Babylonians also did), had an accurate value of the square root of 2 to five decimal places, and indeed worked with the decimal system. They were fond of problems such as "construct a square whose area is three times the area of a given square" or "transform a square into a rectangle of the same area" or "construct a triangle whose area is equal to that of a given square". This information was preserved by the later Hindus for superstitious reasons connected with the Hindu calendar, and eventually by the Islamic mathematicians (which they were incapable of making) and to which they attributed a mystical or divine power.

Indus Valley astronomy is less fully treated because less evidence survives, but it was fairly advanced, and ingenious analysis of one datum has yielded a precise date of 2357 B.C. for an observation. Failure of scholars to decipher the Indus script makes various speculations on Indus astronomy controversial, though many surviving short inscriptions seem to refer to stars (represented by a fish sign). For 1000 years, between 1500 and 500 B.C., India had no form of writing. Most science disappeared. But it was during this period that the early Hindus developed linguistic science to its highest pitch in world history, a story also told in the book. The motivation was the need to preserve immensely long texts orally without such a syllable out of place. Stemming from this extraordinary feat of linguistics came the foundation of phonetics, etymology and the most complicated grammar in the world, that of classical Sanskrit. Also discussed at length is the ancient Hindu concept of rta, which seems to be the world's earliest formulation of the principle of natural law, and which in the Vedic period in India transcended all wishes of the gods.

A sequel volume by another author dealing with the history of Indian science of subsequent epochs will appear in due course. We can hope it will match Chottapadhyaya's book, which will be a fundamental reference work for decades to come.

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RUBBER ECONOMY

AFTER 74 years of publication, the CRC Handbook of Chemistry and Physics (the 'Rubber' book) appears in every technical library worth its salt, and is an essential facility in chemistry and physics laboratories. Now the first softcover edition of this bible has been published, though with 1,800 pages it is slightly slimmer down from the hardback classic, at $29.95. It probably gives more scientific information per unit price than any other book in print, and is aimed at a mass student market. Although the mathematics section has been pruned to a few pages, those on elements and inorganic compounds and organic chemistry retain comprehensive coverage along with sections on general chemical and physical constants. The philosophy has been to present core data that will require revision every three or four years.

The Handbook remains the best source of elementary data (melting point, boiling point etc.) on chemical compounds but it is clearly a husband of its CRC Handbook of Chemistry and Physics, previously published by CRC Press, 1981. Available in Europe, from 3 April, from Wolfe Publishing, London, price £19.95.

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