

## Readers Viewpoint/Letters

### 'The History of Hindu Chemistry' is not a lost legacy'

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#### Dear Editor,

Recent article in your esteemed journal on 'The History of Hindu Chemistry- A Critical Review'<sup>[1]</sup> is exceptionally impressive. It is aptly chosen and elegantly written. The authors took an arduous task and succeeded in filling the lacunae of a review from the perspective of *Rasa Shastra*. The History of Hindu Chemistry (HHC) has been the only publication which gives systematic account of the scientific achievements of the early Indians. The HHC is a conglomeration of history, science, chemistry, alchemy and philosophy of medieval India, diligently presented in a poetic style. The love and inspiration I have developed about the text constrained me to write this letter and contribute. The authors of the review expressed their despair about non-availability of this text in the shelves of libraries which is disheartening. The authors have also mentioned that it was not edited and published after its second edition in 1904 which is not according to the facts. But it is true that it was out of print for decades before it again got edited by Priyadarajan Ray and was published on 1st January 1956 with a new name "History of Chemistry in Ancient and Medieval India" (HCAMI) in single volume. The change of name might have been the reason for the authors to come to that opinion. This was again unavailable for so long as I myself made futile attempts in search of this book up to 2003. It was in 2004 the reprint was again published (with ISBN no. 81-218-0154-0) by Chaukhamba Krishnadas Academy, Indological and Oriental book publishers Varanasi. Presently this book is available from the publishers for four hundred rupees. The centenary edition of the original text came out in 2002. (A History of Hindu Chemistry. Vol. I and II, Centenary Edition, Acharya Prafulla chandra Ray, Somnath Bal, 86/1 Mahatma Gandhi Road, Kolkata 700 009. 2002. 152 pp. Price: Rs 1050.50.) Already one book review was published in Current Science in 2002 on the centenary publication of the text.<sup>[2]</sup> Hence the book "History of Hindu Chemistry" presently is not out of public domain. Supplementing to that hard copies, the second edition (1904, first part only) is also available on internet in free downloadable formats, source copy is from Northern Regional Library facility Bldg. 400, Richmond Field Station, University of California, Richmond, CA 94804-4698. The HHC is available from URL <http://www.archive.org/details/historyofhinduch01rayprich> in different formats (Read Online, PDF, EPUB, Kindle, Daisy, Full Text and DjVu). This might have been uploaded after 2004 as the scanned copy shows that the book was last issued on Aug 2004 from the library. And it seems that the second part which was published in 1909 is not available on internet.

### About the edition in 1956:

The unavailability of the text "HHC" and need for making it available to the students was felt by the Indian Chemical Society (founded by PC Ray) in the year 1948. The council of the society also found the need to incorporate all additional important information that has been brought to light. It was further decided to change the name of the text "HHC" into "History of Chemistry in Ancient and Medieval India". A publication board led by Prof. Priyadarajan Ray as chief editor was entrusted with the task of preparing manuscript. Ultimately this edited version of the text "HHC" with a new name "History of Chemistry in Ancient and medieval India" incorporating History of Hindu Chemistry was published on January 1<sup>st</sup> 1956. This was out of print for many years before it got reprinted in 2004 by Choukhamba Publishers, Varanasi.

### Changes found in new version:

The editorial board led by Priyadarajan Ray took all pains to add new materials. All facts have been carefully sifted with a view to exclude those of doubtful origin or spurious character. References have also been made to the social and cultural conditions of the country, associated with different stages of development of chemical knowledge. Evidences, supported by illustrations wherever possible, of the skill displayed by the early Indians in the art of making glazed pottery, in the extraction and working of metals, in the preparation of caustic alkalies, oxides and sulphides of metals, etc., have been recorded.

As in the text "HHC", a discussion on the decline of scientific spirit in India has been introduced in separate chapter. The section on mechanical, physical and chemical theories of ancient Hindus by B.N Seal have also been included as an appendix in abridge from "the text HHC". The original Sanskrit Shlokas in devanagari script, related to the main topics of the book, are reproduced after the appendix without change. This was followed by the reproduction of the Tibetan texts in Roman script, the English translation of Tibetan Text, .Rasayana Shastrodhriti

### About the author: Prafulla Chandra Ray

Though scientist by profession, his love for, and knowledge of, literature were rather remarkable. A measure of his interest in literature and history can be obtained from his repeated remarks that 'he became a chemist by mere accident'. First and second volumes of his auto biography, *Life and Experiences of a Bengali Chemist* published in 1932 and 1935 respectively. This book was dedicated to the youths of India with the hope of stimulating their activities for national regeneration. He was instrumental in reviving, editing and publishing the most ancient alchemical classical text '*Rasarnava*' by procuring a transcript from *Raghnatha* temple Library, Kashmir, and another from the oriental M.S.S Library, Chennai, and thus he saved it from extinction.<sup>[3]</sup>

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The conclusive remarks in the preface of the second edition of P C Ray conveys about his wide understanding and admiration about the Hindu knowledge -“Let us not Superciliously dismiss these studies as 'learned lumber.' The Astronomy and Mathematics were not less advanced than those of Tycho Brahe, Cardan and Fermat ; the anatomy was equal to that of Vesalius, the Hindu logic and methodology more advanced than that of Ramus, and equal on the whole to Bacon's ; the physico-chemical theories as to combustion, heat, chemical affinity, clearer, more rational, and more original than those of Van Helmont or Stahl ; and the Grammar, whether of Sanskrit or Prakrit, the most scientific and comprehensive in the world before Bopp, Rask and Grimm.”

- Prof. Prafulla Chandra Ray

Excerpts of Sir Edward Thorpe about PC Ray in 'Nature' as early as 1919: 'Her (India) elevation will not come in Sir Prafulla Chandra Ray's time. A small spare man, in feeble health, and a confirmed dyspeptic, he will be spent in her service. But the memory of these services will survive'.

#### About the first review by N. S. Narasimhan:

The review was written in Current Science in the year 2003, Vol. 85, exemplifies the contributions of the prolific author from the text “HHC” like by presenting the excerpts starting from *Chandogya Upanishad* (about combining metals), *Lohadi Rasayana* (iron as rejuvenator processing technique of metals and their conversion into medicine), lost heritage of pre *Charaka* period. How the mussalman students from Arab used to flock to the centres of learning in India in those days for learning Concept of *Anu* (atom) of *Kanada*, interguing discussion on *Parimandalya* (spherical shape), knowledge of cosmetics, *Manjishtha* shrub (*Rubia cordifolia*) for dyeing etc. The reviewer opined that The development of chemistry (materials science) in ancient India, perforce, was empirical; by trial and error methods, presumably, monitored for specific performance. The preparation procedures for a drug had strict regimens. Serendipity must had played its role in the discoveries.

#### Appeal

I appeal to the publishers and the chemical society not to shy away in using the term Hindu in its name and the original name has to be re instated. Even now the world remembers it with its old name. More excerpts of the text are from *Ayurveda*, in particular *Rasa Shastra*, hence in further editions; It should be edited by involving the individuals having authority in the subject for updation. The texts like *Ananda Kanda*<sup>[4]</sup>, *Ayurveda Prakash*, *Arka Prakash*, (medieval *Ayurvedic* text which deals about ancient distillation methods) *Basavarajeeyam*<sup>[5][6]</sup> etc books which were not quoted in the text “HHC” should necessarily be incorporated in further editions. Coming down to South India, *Siddha* tradition also possess tremendous information. PC Ray mentioned about Tamil literature, allusions of 18 sitters (Sanskrit, *siddhas*), additional details for review can give some good leads and can make the text “HHC” more comprehensive. The prefaces written by PC Ray and BN Seal in initial editions are missing in the presently available

edition (HCAMI). In further re prints care must be taken to include those so that it exemplifies the chronology and efforts made by the noble souls for the betterment of humanity.

#### Finally

No doubt The History of Hindu Chemistry is a legendary text which has stood for tirades of time. The central theme in this book is to establish that the developments in material science (chemistry) and also in medicine in Hindu India were indigenous. The author has succeeded in proving it. He has made a good beginning but unfortunately that was not properly carried forward. This message has to be carried to the future generations by putting required efforts such as inclusion of facts of the text by some means in secondary school chemistry to ignite the scientific spirit of young generation.

#### References

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